TEENAGE PREGNANCY: A REVIEW OF PATIENTS ACCESSING OBSTETRIC CARE IN THE PENINSULA MATERNAL AND NEONATAL SERVICE

By

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DECLARATION

I, Linda Vollmer, hereby declare that the work on which this dissertation is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it, is being, or is to be submitted for another degree in this or any other university.

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I, Zephne van der Spuy, have supervised the research which Linda Vollmer has undertaken and the presentation of this dissertation.

I am satisfied that this is Linda Vollmer's original work and that this dissertation should be submitted in fulfilment of the requirements for the degree MMed Obstetrics and Gynecology.

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ABSTRACT

OBJECTIVES: To evaluate the socio-demographic and family background of pregnant teenagers accessing our obstetric service, as well as their contraceptive use and knowledge and to identify trends and risk factors which can be addressed in terms of preventative strategies, service provision and support.

DESIGN AND METHOD: This is a cross-sectional observational study, comprising 314 black and coloured pregnant teenagers, aged 16 – 19 years, attending obstetric services in the Peninsula Maternal and Neonatal Service Area in Metro West. Data were collected by means of an administered questionnaire consisting of social, demographic and family details as well as contraceptive use and knowledge. Research Ethics Committee approval was obtained. Data were captured using Epidata, double entered and checked and statistical analysis performed using STATA.

RESULTS: Ninety one percent of women would have preferred to wait at least 5 years before their first pregnancy. Only 39.2% of women had parents who were married and 43.5% of patients interviewed had mothers who were pregnant as teenagers. Forty three percent of women were attending school and, of those not currently ins school, 31.1% had left due to pregnancy. Twenty one percent of women were living in informal housing and 66% did not have access to indoor plumbing. Only 12.1% were using contraception at conception and contraceptive knowledge was poor. Of the women interviewed, 92.7% would value more information about contraception, sexual and women's health. There were statistically significant differences between black and coloured women ($p<0.05$)

CONCLUSION: This study shows that most teenage pregnancies are unintended with many parturients coming from non-nuclear families with poor socio-economic circumstances and have often left school as a result of their pregnancies. Contraceptive use is poor and respondents feel education about contraceptive and sexual health is lacking. This study allows us to formulate risk factors specific to our population and assist us in formulating

intervention programmes as well as identifying deficits in the provision of contraception to young women.

LIST OF ABBREVIATIONS:

SADHS	South African Demographic and Health Survey
AMPS	All Media and Products Income Survey
TOP	Termination of pregnancy
USA	United States of America
CAPS	Cape Area Panel Study
MOU	Midwife Obstetric Unit
MMH	Mowbray Maternity Hospital
NSH	New Somerset Hospital
PMHP	Perinatal Mental Health Project
PMHS	Perinatal Mental Health Score
IUCD	Intra-uterine contraceptive device
OR	Odds ratio
RR	Relative risk
CI	Confidence interval

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CHAPTER 1: INTRODUCTION AND LITERATURE REVIEW

According to the 2003 South African Demographic and Health Survey (SADHS), 27.3% of women in South Africa have been pregnant by the age of 19 years. In the Western Cape, 1 in every 10 young women under the age of 19 is a mother[1]. The vast majority of these children are born to young black and coloured mothers. The pregnant black teenager has been well studied and risk factors are clearly documented in the literature. In contrast, there are little data on coloured women. The impact of teen pregnancy at an individual, community and national level is profound. Not only is the teen mother more likely to be from a socially disadvantaged background herself, she and her children are at significant risk of adverse life events later on, thus perpetuating this vicious cycle. In the literature it is reported that up to 60% of teen mothers are themselves the product of a teenage birth[2].

Data from around the world state that the pregnant teenager is more likely to come from a single parent home and a low income family, have poor social circumstances, be a victim of abuse, have an early sexual debut and use contraception unreliably. Without intervention, she is also at risk of rapid repeat pregnancy[3].

Teenage pregnancy represents a global crisis with far reaching consequences for both the mother and her child, as well as posing a significant social and economic burden. The fifth annual *State of the World's Mothers* report, published by the international charity, Save the Children, found that 13 million teenagers give birth each year (a tenth of all births worldwide). More than 90% of these births are in developing countries[4].

Many teenage pregnancies in South Africa occur within the context of unstable relationships and are often unintended or unwanted[5]. Moreover, according to the Department of Health HIV and AIDS national strategic plan, "teenage pregnancy is by definition indicative of unsafe sex and should be understood in the context of the HIV/AIDS epidemic." [6]. In Britain, despite numerous educational programs, the teen birth rate has remained stable since the 1980s, namely 20 births per 1000 teens, the highest in Europe. [7].

The most recent SADHS of 2003 showed that 11.9 % of teens (15 – 19 years) have ever been pregnant, of these, 9.4% are mothers [1]. These pregnancies occur with equal frequencies in black and coloured women (43% and 41% respectively) while white and Indian women make up the minority (8% each).

Overall, this is a decline from the level of 16% for teen pregnancies and 13% for teen mothers respectively as quoted in the 1998 SADHS[8]. What is worrying, however, is that the chance of a teenage girl falling pregnant increases from 1.9% at age 15 to 27.3 % by age 19, meaning that more than a quarter of South African women have been pregnant by the age of twenty[1]. The majority of children from these pregnancies are born into impoverished and socially disadvantaged families who may not have adequate means to support them. Statistics from the 2006 All Media and Products Income Survey (AMPS) conducted by the South African Advertising Research Foundation showed 43.2 % of South Africans to be living in poverty, defined as living below a poverty line of R3000 per capita per annum.[9]

If we consider the rest of the world, the burden of teenage pregnancy in South Africa becomes clearer. The Netherlands has one of the lowest rates in the world with 5 live births per 1000 teens, while the United States of America are considered to have the highest rates for an industrialised country in the world at 53 births per 1000[10]. The United Kingdom has the highest teen birth rate in Europe, namely 20 births per 1000 teens. According to the State of World Population report of 2003, published by the United Nations Population Fund, South Africa's teen birth rate is 66 live births per 1000 teens, three times that of the United Kingdom[10]. These figures are undoubtedly very high, and should be regarded as indicators of poor sexual and reproductive health, and of broader social problems among this young and vulnerable group of women. [11]

According to the Department of Health National Statistics of 2008, 12.7% of terminations of pregnancy (TOP) performed were for women under the age of 18 years [12]. This only refers to terminations performed in designated TOP facilities and this is therefore likely to be an under-representation of the number of teenage girls who actually had a pregnancy termination. Prior to the Choice of Termination of Pregnancy Act of 1995, teenagers were three

times more likely to suffer complications from TOP and are still more likely to undergo unsafe abortions than older women[13].

Studies from South Africa have mainly focussed on black teenagers and their risk factors for pregnancy. An electronic literature search was performed through UCT libraries using PUBMED and Google Scholar. The search terms 'teenage pregnancy', 'adolescent pregnancy', ' South Africa' and 'coloured population' were used. In the literature review conducted, no studies were found addressing coloured teenagers specifically or differences between racial and population groups with regard to teen pregnancy.

A study by Wechsberg et al conducted in Cape Town investigated methamphetamine, alcohol and cannabis use among black and coloured women as well as risk behaviours and found significant differences between the two groups, mainly with regard to sexual risk behaviour. Coloured women were more likely to have multiple sexual partners and use methamphetamines, while black women were more likely to have a main partner but to exchange sex for goods. The authors also found there to be a deficit in the literature concerning black and coloured women[14].

Sawyer et al, in a study conducted in the Cape Town area in South Africa, investigated risk behaviour among women of colour and found significant differences. Coloured women reported relationships with men in gangs, more gang related and women-on-women violence, and were more likely to trade sex for drugs. Black women stated that they could not trust their partners to use contraception. The authors stated the need for culturally specific women-based intervention programmes within the South African context[15].

It is likely that similar differences exist between black and coloured teenagers and their risk factors for pregnancy and this needs to be examined further in order to understand and address this problem. An observation from clinicians working locally in ante natal clinics is that black and coloured teenagers differ with regard to their knowledge, attitudes, behaviours and support systems, but, at present, there are insufficient data available to support this anecdotal evidence.

Implications of adolescent pregnancy

Numerous obstetric complications affecting both the adolescent mother and her baby have been cited in the literature. It is important to realise that often pregnant teenagers are from disadvantaged backgrounds, and their social circumstances may be implicated in many of the adverse outcomes. In developing countries, pregnancy and childbirth complications are the leading cause of death among teenagers. The *State of the World's Mothers* report shows that, compared to women in their twenties, teenagers are twice as likely to die from pregnancy and childbirth complications and maternal mortality is five times higher in young women aged less than 15 years. In countries most affected by teenage pregnancy, mainly in Africa, 1 in 7 children born to teen mothers die in their first year of life, which is, in part, a reflection of the poor socio-economic status of the mother [4].

According to Jolly et al , in a retrospective study of women in the North West London area and surrounds, women under the age of 18 are three times more likely to be late bookers and have poor clinic attendance(OR 3.35, 99% CI 3.05 – 3.69) than women between the ages of 18 and 34 years of age. Pregnant teenagers are also twice as likely to be anaemic (OR 1.82, 99%CI 1.63 – 2.03) and have an increased rate of urinary tract infections (OR 1.60, 99% CI 1.1 2.31) [16].

Fraser looked at adverse birth outcomes in Utah, USA, and found that inadequate prenatal care in teenage mothers was most strongly associated with adverse outcomes and was more common in the younger teenagers. A review of birth records reported that only 52% of mothers aged less than 17 years had adequate antenatal care, compared with 76% of mothers aged older than 20 years [17]. Konje et al, in a study from Hull in the United Kingdom, showed an increased risk of forceps delivery in pregnant adolescents younger than 16 years (RR 2.37, 95% CI 1.8 – 3.12) but no significant difference in the caesarean section rate[18].

A Swedish population based cohort study with a 30 year follow up demonstrated a 70% increase in the risk of premature death for mothers aged younger than 17 years and 50% increase in those aged 18 – 20 years. The causes of death included cervical cancer, ischaemic heart disease, suicide and death as a result of violence[19].

Teenagers are also more likely to smoke and use alcohol during pregnancy. Smith and Grenyer interviewed 122 patients attending hospital services in South West Australia and reported that 45.1% admitted to tobacco use in their pregnancy [2].

In a Canadian study reviewing teenage pregnancy and adverse birth outcomes, there was an increase in the relative risks of preterm birth before 32 weeks, small for gestational age babies, Apgar scores of less than 4 and neonatal death. These parameters were all statistically significant and adjusted for confounding variables such as marital status, social class, level of education, prenatal care and the use of alcohol and smoking[20]. Moffit and the E-Risk Study Team found that the children of young mothers in England and Wales have more emotional and behavioural problems, higher rates of illnesses, accidents and injuries and are often behind in their cognitive skills[7].

Aside from the health implications of having a child as a teenager, there are further consequences which may prove to be more devastating for the young mother in the long term. Irvine et al describe 3 factors: economic deprivation, lack of social support and poor psychological development. Adolescence is a period of physical and emotional growth and marks the transition from childhood to adulthood. For many, this is a time of crisis and any upset during this period, such as pregnancy and motherhood, makes the teenager significantly more prone to stress related physical and mental disorders [21].

Research was done for an honours dissertation involved interviewing school going teenage mothers in Mamelodi, a township east of Pretoria in South Africa. This study showed that 75% of young women interviewed had trouble envisioning their future and 90% experienced physical exhaustion, task overload, role confusion, social isolation and depressive features[22]. The Birth to Twenty longitudinal study conducted at the University of the Witwatersrand provides insight into some issues around teenage pregnancy. It demonstrates that young pregnant women, their partners and parents are "locked into a silence of fear and shame preventing them from providing mutual support and from accessing available services which are often experienced as distant and inaccessible"[23].

The financial implications are staggering. Up to 50% of the high poverty rates and public assistance in the United States of America can be directly attributable to teen pregancy[24]. Although South African data suggest that school drop-out may precede teenage pregnancy, 39% of young South African women cite pregnancy as a reason for leaving school [25]. This starts a vicious cycle of school interruption, persistent poverty, support on welfare, limited employment opportunities, separation from the child's father, divorce and repeat pregnancy[26].

Hotz et al reviewed the costs and consequences of teen child-bearing to mothers in America – it was found that women who delay their child-bearing, on average, have double the market earnings compared with women who have a teen birth. Moreover, teen mothers are more likely to have less annual hours of work for pay [27]. Moffit found that teen mothers in Britain are 5 times more likely than older mothers to live in council housing 5 years after the birth of their children [7]. In the USA, it has been estimated that teen pregnancy costs the government $6.9 billion per year (in 1993 dollars). This money is spent on public assistance benefits, welfare and food stamps, increased medical expenses, increased criminal activity, foster care and loss of productivity in the workforce[28]. In a developing country such as South Africa with so many people living in poverty and such a high rate of social and economic inequality, the financial implications are profound.

Demographic, social and family risk factors

According to the SADHS of 2003, teen pregnancy is more common in rural settings (60% more likely) and Limpopo Province has the highest teenage pregnancy rate in South Africa (16.8%). Among population groups, 12.5% of African teenagers have ever been pregnant, 11.7% of Coloured teenagers and 2.2% and 2.4% of White and Asian teenagers respectively [1].

The teenager is a product of her environment and as such, variables such as social class and income, family structure and home circumstances, parenting, experiences of her own mother and siblings, relationships with members of the opposite sex and knowledge about sex and contraception and available

support services all impact drastically on risk- taking behaviour, unsafe sex and unintended pregnancy.

Family structure

Although the literature is at times inconsistent, it is clear that many important risk and protective factors for teen pregnancy lie within the family. Vundule et al conducted a matched case control study examining black adolescents in Cape Town booking at ante- natal clinics[5]. It was found that a teenager was more likely to be pregnant if the household was not a nuclear family (RR 4.00, CI 2.52 – 6.34) and more commonly had a larger household.

In a similar study on teenage sexual behaviour in Britain, Bonell found a 2.34 increase (95% CI 1.24 – 4.08) in the relative risk of teen pregnancy in one parent versus two parent households. The probability of a pregnancy is also significantly higher in families who have suffered divorce, separation or death of a spouse, compared to teenagers in never-married single parent households, indicating the importance of stability in the home [29]. Moore and Chase-Lansdale, in a study from the USA, showed that even teenagers who lived in foster families had less chance of falling pregnant if the foster family comprised a married couple and provided a stable home life, compared to teenagers living with a biological single parent, but with less stability[30].

Goicolea et al showed a very significant increase in the risk of pregnancy among adolescents in the Amazon basin in Ecuador if both parents are absent (OR 9.85, 95% CI 4.39 – 22.09), again highlighting the importance of a nuclear family with both, preferably biological parents, present [31]. Gaudie et al found 16.8% of girls in Britain who were in a step/foster family went on to become pregnant, as opposed to 7.5% of girls from original families [32].

Vikat et al, in a Finnish study, distinguished four different levels of family type, all to have a statistically significant impact on the risk of teenage pregnancies within these families. Living with both biological parents was found to be most protective (reference RR 1) followed by living with one parent (RR 1.96, 95% CI 2.27 – 2.96) or living with one biological and one step parent (RR2.59, 95% CI 1.74 – 2.22). Teenagers who lived with their partners were most at risk for pregnancy (RR 5.13, 95% CI 4.29 – 6.15) [33].

The more support there is in terms of family members, particularly extended family, the better. Grandparents, aunts, uncles or other stable adult members in the household will form important social contexts for children and adolescents as they mature.

Father absence specifically has been found to increase daughters' risk for early sexual activity and teenage pregnancy. In longitudinal studies carried out in the United States and New Zealand by Ellis et al, early father-absent girls had the highest rates of both early sexual activity and adolescent pregnancy, followed by late father-absent girls, followed by father-present girls. This issue may be especially relevant in predicting rates of teenage pregnancy, which were 7 to 8 times higher among early father-absent girls, but only 2 to 3 times higher among late father-absent girls, than among father-present girls[34].

Goicolea et al from Ecuador, analysed childhood adverse events as risk factors for teenage pregnancy and reported that the families of pregnant teenagers are more likely to have a history of substance abuse, mental illness and incarceration[31]. Teens in this study also reported more physical abuse, though not statistically significant, and 55% reported sexual abuse in childhood or adolescence, compared with 16% of non-pregnant teens (OR 6.63, 95% CI 3.89 – 11.83) [31].

Traditional black families in Africa often hold different views on teenage pregnancy. Adolescent child-bearing is common and often accepted in these families as the norm. It is a fairly acceptable stage in the domestic life cycle of families. The baby is usually accepted into the mother's family and raised as the youngest child, thus allowing the mother to return to school[35]. Childbirth whether in or outside of marriage is considered a rite of passage and may elevate a young woman's social standing. Moreover, should a teenage girl fall pregnant, the experience and options available will be very different for girls who come from close knit supportive families as opposed to those from marginal and dysfunctional families[36].

The mother's influence

It is well documented that the age a mother has her first child can affect the chance of her teenage daughter falling pregnant. Bonell et al found that young women in Britain whose mothers were less than 20 years at their first birth were more likely to report early sexual debut (RR 1.72, CI 1.20 – 2.46). This association was unlikely to be explained by the style of parenting experienced by these young people[29]. Similarly in an Australian study reviewing the psychosocial profile of pregnant adolescents in a rural area of Australia, it was found that out of 122 pregnant teenagers studied, 56% had mothers who were pregnant in adolescence. These teenagers also had more social support as their mothers were seen to be more empathetic and socially accepting [2].

Ermisch et al reviewed data from the 1992 British Household Panel Survey and, similarly, found teenage pregnancy to be two and a half times more likely in children who had been born to teen mothers [37]. Daughters of teenage mothers are also more likely to continue with their pregnancy instead of opting for termination[38]. It has been suggested that mothers should be aware of the role they play in influencing their teenage daughter's sexual behaviours and that when maternal behaviours and values support delayed sexual intercourse, adolescents will delay first sex[39]. Furstenberg et al, in research conducted in the USA examined early child bearing in two generations and found that nearly two thirds of the daughters of adolescent mothers in their study delayed their first birth until age 19 or later, but those who had a teenage birth were more vulnerable to economic dependence and less able to escape poverty [40].

In research conducted in California, East shows that even the younger sisters of teenage mothers are at an increased risk of adolescent pregnancy[41]. Compared with the younger siblings of never-pregnant teenagers, the younger sisters of pregnant teenagers see school and career as less important, are more accepting of adolescent childbearing, perceive younger ages as appropriate for first intercourse, marriage and childbearing and engage in more problem behaviour. This is most likely because siblings share the same parental influences, and societal risks.

Social Class and Household Income

Economic stability and social class are well described as being both a cause and consequence of adolescent pregnancy.

Numerous studies have highlighted social class as an independent risk factor. In a meta – analysis of social disadvantage and teenage pregnancy from the UK, Harden et al found three major themes relating to teen pregnancy risk: dislike of school, poor material circumstances and unhappy childhood and low expectations and aspirations for the future. This social disadvantage refers to social and economic difficulties such as poverty, discrimination and unemployment on the basis of ethnicity, socioeconomic position, education level and place of residence [42].

In Ecuador's Amazon basin, 28% of the poorest adolescent women experience pregnancy, versus only 11% of those in the wealthier group. It is interesting, however, to mention that the level of education reached by either of the teenage mother's parents was not found to be a significant risk factor [31]. Gaudie et al in Australia found the proportion of girls who became pregnant or gave birth before 20years of age decreased with increasing combined carer income. In their study, 12.3% of girls from low income families went on to become mothers compared with 2.7% from high income families [32]. The same was found in a Finnish study which stated that girls from lower social class families have 2.5 times the risk compared to girls from higher socio-economic class families. In this study there was a 2.21 relative risk increase (RR 2.21, 95% CI 1.92 – 2.54) in teen pregnancy if the primary care giver had less than 8 years of education [33].

Vundule et al conducted a study in Cape Town specifically studying pregnant black adolescents at antenatal clinics in Khayelitsha and Gugulethu[2]. In this study 3 variables were used as indicators of household income: whether the teenager lived in a brick house (as opposed to informal housing), the number of rooms in the house and whether the family owned a television set. All 3 emerged as independent and highly significant risk factors, particularly not living in a brick house (RR 5.09, 95%CI 2.01 – 12.88) and not owning a television set (RR10.33, 95% CI 3.35 – 31.82). Ownership of a television set is related to ability to own a set and to afford electricity. Vundule found having

a mother who had attained Std 9 or higher or was employed to be a protective factor, while the same was not proven to be statistically significant with regard to the father.

Family income also affects risk taking sexual behaviour. The Cape Area Panel Study provided a database which was used to study 2993 African and coloured youths from the Cape Town area in 2002 and 2005. A 10% increase in 2002 income was associated with a 0.6% decline in the probability of sexual debut in 2005. It also showed that men were less likely to report condom use if they came from poorer communities and that women are more likely to report multiple sexual partners if they live in households experiencing an economic shock [43].

Several theories have been hypothesized to explain the relationship between socioeconomic status and adolescent pregnancy risk. The first relates to access and affordability of health care, contraceptive services and pregnancy termination. It also influences a teenager's social environment particularly with regard to child care and supervision, parental engagement and access to information and education. Secondly, children from poorer families are more likely to feel disempowered and take fewer measures to prevent pregnancy. They are also more likely to struggle at school, perceive themselves not to be well-treated by health services, have difficulty envisioning their futures and are more vulnerable to abuse by boyfriends[36.]

In South African studies, poverty, unemployment and lack of opportunity are linked to higher levels of sexual promiscuity and less awareness of HIV/AIDS. Poverty is the main reason for transactional sex in which young women, often teenagers, engage in sexual relationships, often with older men, for financial gain. This does not necessarily imply prostitution, but rather that an older boyfriend may offer both status and gifts and financial assistance that the parents may not be able to afford. In this situation, sex happens on the man's terms, usually meaning without a condom. The women may put her health second to immediate economic gains [44].

Relationship dynamics and contraceptive use

Vundule et al found the mean age of first intercourse to be 14 years (roughly 3 – 6 months after first menstruation) with no significant difference between teenagers who went on to become pregnant and those who did not. Most (82.2%) pregnant teenagers admitted to knowing their partners for only a short while, versus 53.3% of non-pregnant teenagers. The mean age difference between the young women and her boyfriend was 5 years. Non consensual coitus with their current partner was described by 72% of girls who were pregnant versus 59% of girl who were not pregnant [5]. Jewkes et al found that 52% of pregnant teenage girls had boyfriends who were already out of school. Fifteen percent of teenagers who went on to become pregnant described a time interval of less than a week between their first sexual relationship and next sexual partner [35].

Kenyon et al reported on sexual partner concurrency among South Africans in Cape Town aged 14 – 25 years, defined as relationships where an individual has overlapping sexual relationships with more than one person[45]. Of the 2468 individuals interviewed, 21% had engaged in concurrent sexual relationships. The authors found this to be more common amongst black women (19.4%) compared to coloured women (2.9%). Concurrency was also more common amongst the unmarried, the lower two income quintiles, lower educational outcomes, a younger age of sexual debut and regular alcohol use.

In a Cape Town study examining sexual behaviour of Cape Town high school students, Flisher et al studied 2740 students in grade 8 to 12[46]. They found that by grade 8 (roughly 14 years), 10.8% of females and 23.2% of males had already experienced intercourse. Only 64.6% of grade 8 girls used contraception at last sex. Condoms were used by 40% of these pupils, 8.5% were on the combined oral contraceptive pill and 71.7% were using injectable contraception. The authors were concerned that, although these girls are protected against pregnancy, they are not protected against HIV or sexually transmitted diseases, and the widespread use of injectable contraceptives may remove a barrier to sex and provide more sexual freedom. Vundule et al, in their study, reported that 88.4% of pregnant teenagers did not use contraception at first intercourse and only 19.6% had used any contraception at all in the year preceding their pregnancy [5]. Mqhayi et al found that only 17%

of young women interviewed at urban and rural primary level clinics had heard of emergency contraception [47].

A national survey of American adolescents reported 21% had engaged in sexual intercourse by age 15 (according to South African statistics, by age 15, 34.5% of teenagers are sexually active)[46]. The authors concluded that adolescents tend to engage in sexual activities in the context of serial monogamous relationships of short duration, increasing their exposure to sexually transmitted infections and pregnancy [39].

In a study by Jewkes and Woods entitled "Blood Blockages and Scolding Nurses: Barriers to Adolescent Contraceptive Use in South Africa", many truths became evident. The adolescents interviewed for the study (all from a rural area in the Northern Province) had received very little information regarding menstruation, sex and contraception and many were misinformed. They perceived the nursing sisters to be judgemental and scolding with very little respect for their privacy. The teenagers in turn felt ashamed and feared returning to the clinic. Some sisters threatened to tell their parents. The teenagers also mentioned that the nursing sisters did not give them enough information about side effects of different medications and did not give the girls the option of changing methods should they be unhappy. This led many girls to stop of their own accord. The nursing sisters in turn found it very stressful to work with the teenagers. They described the teenagers as irresponsible, of thinking of sex as a "game" and thought many of the teenagers wished to fall pregnant in order to please their boyfriends and secure their relationships [48].

Studies conducted by the Contraceptive Development Network interviewed men and women from Edinburgh, Shanghai, Hong Kong and Cape Town about various aspects of contraception[49,50,51,52]. Respondents from Cape Town were divided into different racial groups. Although not dealing with teenagers per se, it was evident that behaviour and attitudes to contraception differ around the world and between cultural groups in Cape Town.

Abuse

Abuse is an independent risk factor for early pregnancy. Jewkes et al examined relationship dynamics and teen pregnancy risk and reported that 59.8% of pregnant patients attending antenatal services in clinics in Cape Town reported being beaten by their boyfriends. Half of these young women did not leave their current partners once they were physically abused. It was reported that 77.9% feared further beating if they refused sex and 72% said they had had non consensual sex[35].

Maharaj and Munthree interviewed young women in KwaZulu Natal and found that 46% of participants had experienced forced first sex. They found that these young women were more likely to be black and living in an urban environment, to contract a sexually transmitted disease, experience an unintended pregnancy and be abused in future relationships [53].

The Ecuador study reported that 47.8% of pregnant teenagers admitted to physical abuse, 28.3% to emotional abuse and 55.7% to sexual abuse (six times more likely than their non-pregnant counterparts) [31]. The children of adolescent mothers are also twice as likely to be abused both as children and in their adolescent years[54].

Schooling

In a study examining the effect of pregnancy on schooling in South Africa, Grant and Hallman reported that only 14% of schoolgirls who fell pregnant remained in school. Young women were more likely to remain in school if they were good students before the pregnancy, came from higher income families or fell pregnant while in Grade 12.

Of the students who went on to become the primary caregiver of their children, 78% dropped out of school, highlighting the importance of good support structures for these young women [55]. The then South African Minister of Education, Naledi Pandor, in 2007, cited teenage pregnancy as one the reasons why we are not attaining gender equality in education [56].

In the United States , Rebecca Maynard and the Robin Hood Foundation blamed teenage pregnancy for over 30 000 school dropouts annually and reported that only 30% of women who had a child as a teenager obtained a high school diploma[54].

Mental Health

Cooper et al found that the rate of postpartum depression in Khayelitsha, a peri-urban settlement in Cape Town, was 34.7%. This figure is three times that found in British studies [59]. Risk factors include poor support, poverty, domestic violence, HIV/AIDS and teenage pregnancy.

In a study conducted in the United States, Barnet et al interviewed 125 adolescent women in their third trimester and again at 2 months and 4 months postpartum. They found that 42% of young women had significant depressive symptoms during their pregnancy with 36% and 32% having scores that indicated depression at 2 and 4 months post-partum. This was more likely if there was lack of support from the women's mother and/or partner.[60]

Higher suicide rates have been described in young women in their first pregnancy. Bayatpour et al analysed 352 young women receiving prenatal care and reported that 11% had suicidal ideation. This was more likely when there was a history of physical, sexual and substance abuse [61].

The Perinatal Mental Health Project (PMHP) implemented in 2002 at Liesbeeck MOU at Mowbray Maternity Hospital has screened 11 354 women to date. Thirty three percent of these women qualified for referral to counsellors and needed psychological or psychiatric intervention. Twenty one percent were referred to appropriate community organisations such as shelters for abused women or drug addiction counselling organisations. PMHP service data shows that there is a significantly higher prevalence of mental distress in pregnant teenagers compared to pregnant adults [62].

CHAPTER 2: Methods

The primary objective of this study was to evaluate the demographic, socio-economic and family background of pregnant teenagers who access our obstetric service, as well as their contraceptive use and knowledge.

The secondary objective was to try to identify trends and risk factors specific to these young women which can be addressed in terms of preventative strategies, service provision and support.

The inclusion criteria were:

- *Black and coloured women aged 16 to 19 years attending our service*
- *Willingness to participate with an understanding of the study.*

The exclusion criteria were:

- *Women who did not understand the study*
- *Women who declined participation*

This was a prospective cross-sectional study. All patients fitting the eligibility criteria were recruited from booking and antenatal clinics at Mowbray Maternity Hospital, New Somerset Hospital, Gugulethu, Khayelitsha and Mitchell's Plain MOU as well as the antenatal and labour wards at Mowbray Maternity Hospital and New Somerset Hospital.

Patients were recruited between March and September of 2011, we aimed for 300 patients which includes 150 black and 150 coloured women. White and Indian women were not recruited as their numbers within our service are too low for us to recruit a large enough sample.

The Reproductive Medicine Unit forms part of the Department of Obstetrics and Gynaecology at Groote Schuur Hospital and is dedicated to all aspects of reproductive medicine including contraceptive services and is one of the five participating centres in the Contraceptive Development Network. The Contraceptive Development Network has its head office in Edinburgh and is

funded by the Department for International Development in the United Kingdom and the Medical Research Council (United Kingdom) . It has centres in Shanghai, Hong Kong, Nigeria and Cape Town. This collaborative network is dedicated to studying advances in male and female contraception.

Research conducted by the Contraception Development Network has given members of the Reproductive Medicine Unit considerable experience in studies of this nature and suggests that 150 participants per group is an adequate number to give statistically significant results. From the literature, we assumed contraceptive use among teenagers to be roughly 50%. Using this knowledge, a 50% prevalence of contraception usage among 300 people would yield results with a 5% confidence interval.

This was a sample of convenience. The investigators attended the various antenatal clinics on alternating days and approached all eligible patients about the study. At each visit, all women fitting the inclusion criteria were approached and recruited. The patients were informed of the study and given an information leaflet to read. The women were then counselled and interviewed in private if they agreed to participate.

Due to the nature of antenatal clinics, not all women identified were recruited and interviewed. Women see the antenatal clinic sisters, counsellors and often have an ultrasound during their booking visit. Therefore some eligible women were not recruited as they were busy elsewhere or not willing to wait to be interviewed. The investigators also identified antenatal patients in the wards of MMH and NSH and as well as the labour wards. Care was taken not to interview any women in labour, but some women in the early stages of induction of labour were interviewed if they agreed. Women were identified by the personal information on their antenatal folders or referred to the interviewers by the clinic sisters who had identified eligible patients.

Women attend the MOU in their area of residence whereas patients at Mowbray Maternity Hospital and New Somerset Hospital comprise both local patients and referrals from MOUs. It is likely that the women attending the study sites represent the study population accurately with the exception of those women who were not receiving antenatal care. Not all MOUs in the PMNS were studied due to resource constraints and it is possible that

differences may have been encountered had all MOUs been involved. However care was taken to include MOUs in areas with predominately black and coloured population groups.

Data collection was by means of an administered questionnaire and clinical information was obtained from the ante-natal booking card.

The questionnaire was translated into English, Afrikaans and Xhosa and administered by the members of the Reproductive Medicine Unit all of whom are employed by the University of Cape Town in this capacity. The questionnaire was piloted and amended where necessary. Care was taken to interview the patients in private and maintain confidentiality. The patients were identified only by folder number on the questionnaires.

The questionnaire consisted of social, demographic and family details of the patient as well as support systems and contraceptive use and knowledge. All questions were fully explained by the interviewer in a language of their choice.

The questionnaire covered (please refer to the appendix):

- Section A: Age, population group and home language (patients were asked to classify themselves into a population group)
- Section B: Obstetric history
- Section C: Information about current pregnancy, including current gestational age and gestational age at booking as well as timing or preferred timing of the current pregnancy.
- Section D: Detailed family history including information about parents and caregivers, history of teen births of mother or siblings and parental monitoring.
- Section E: Socio-economic information including ratio of earners to number of people in the household, housing, basic amenities and household items.
- Section F: Relationship status and details of current partner/father of child and emotional and financial support systems.
- Section G: Perinatal Mental Health Score
- Section H: Use of cigarettes/alcohol/recreational drugs

- Section I: Education and future plans
- Section J: Contraceptive use and knowledge was explored in detail as well as the perceived availability and provision of contraception
- Section K: Abuse

The respondent could elect not to answer specific questions if she were uncomfortable and was reassured about this at the start of the interview.

Eligible patients not willing to participate in the study were assured that this would not jeopardize their present or future treatment. Any patient query was appropriately managed with by the investigators. Participation was entirely voluntary and patients could withdraw at any time from the study without giving a reason and this would not adversely affect their care. Anonymity and confidentiality were guaranteed. Participants were not offered any monetary incentives for participation in the study.

To avoid bias, the team administering the questionnaire were not involved in the obstetric care of the patient.

The study sites were informed of the study and care was taken not to disrupt normal working activities.

Informed consent and confidentiality

The purpose of this study was to investigate pregnant teenagers in our obstetric service. This included participants under the age of 18 years, though we elected to exclude patients under the age of 16.

Currently there is no clear legal statute specifying when minors can consent to research. Clinical trials normally require parental consent, though low risk research (i.e. survey or questionnaire) may be approved without parental consent provided that the participant fully understands the study and other protections are in place, such as ethical review [58].

For this study, parental consent was only obtained if the patient requested this. The patient had the option of having her parent or guardian present

during the interview if she so wished. The patient gave written informed consent for herself, provided she was comfortable with this and fully understood the study and its aims.

In our setting, patients often attend the clinic or hospital unaccompanied and obtaining parental consent from each participant would not have been feasible.

In discussion with members of the Research Ethics Committee, we felt it was justified to waiver consent in this situation as there was minimal risk involved and the questions are, for the most part, non-invasive. Although many of our recruits were under 18 years of age, some were already living independently and were not reliant on their parents. A proportion of these women were married. We also believe it is important to allow these women to consent for themselves to help empower them and maintain a sense of privacy and dignity. Parents may not all be aware of the social circumstances and behaviours of their children and we would not want to disrupt family relationships or cause individuals to be stigmatised. The routine involvement of parents or guardians may have introduced bias.

We consulted Reverend David Galetta while compiling our protocol. Reverend Galetta is a member of the Desmond Tutu HIV Foundation, chair of the International AIDS Society 2009 Community Advisory Board, a member of the global community advisory board of the HIV Vaccines Trials Network and serves as a community representative on the University Of Cape Town Faculty of Health Sciences Research Ethics Committee. He supported the study and felt that there would be no objection from the community at large as the study poses minimal risk with obvious benefit to future teenagers in this position. He also made valuable suggestions and we incorporated these into the questionnaire.

As is routine in our service, all patients under the age of 18 years are referred to a social worker either ante- or post-natally to address any social issues which may be pertinent.

The participant was referred to the social worker on the day of interview if any of the following became evident during the interview:

- History of sexual, physical or emotional abuse
- Drug or alcohol abuse
- Difficult home or financial circumstances requiring assessment and intervention.
- A score of two or greater on the Perinatal Mental Health Score

Data management and statistical analysis

All questionnaires were validated by the investigator and entered into a database created using Epidata. The data was then double entered for verification. All questionnaires were retained and stored in the Reproductive Medicine Unit.

Statistical analysis was performed using Stata software version 11 with assistance from Henri Carrara (MPH) from the School of Public Health and Family Medicine in the Faculty of Health Sciences of the University of Cape Town.

Demographic details were presented in a descriptive manner. Categorical data were analysed with Chi-squared and Fisher tests. The Shapiro-Wilk test and Rank Sum test were used in the analysis of continuous data.

We performed principal component analysis to determine summary measures of correlated variables to indicate measures of wealth.

A p-value of <0.05 was used to indicate significance and odds ratios were calculated with a 95% confidence interval.

Consent from Research Ethics Committee

Approval for the study was granted by the Research Ethics Committee of the Faculty of Health Sciences of the University of Cape Town (HREC REF: 561/2010) and from the Provincial Health Research Council of the Western Cape (RP 82/2011). Both letters of approval are included in the appendix.

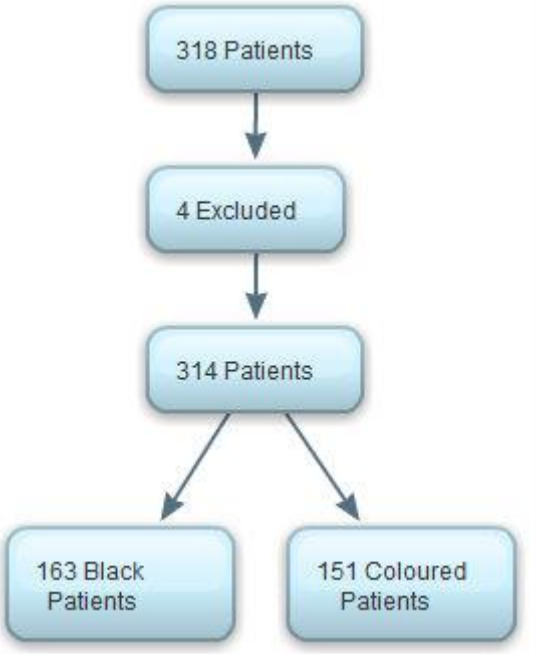
CHAPTER 3: Results

We recruited 318 women and excluded 4 who were less than 16 years of age. These women had stated that they were 16 years at the time of interview, but were younger when, on analysis, their age was calculated from their date of birth. No potential respondent declined to participate in the study. All recruits signed consent for themselves and none requested their parents or guardians to be present.

SECTION A: Background information.

The study group comprised 163 black women and 159 coloured women. The average age of the participants was 18.1 years with a range of 16 – 19 years and 17% (n=55) of recruited participants were 16 years of age. The mean age of participants in each group was the same , namely 18.1 years for black women and 18.3 years for coloured women.

Figure 1: Breakdown of recruited women



The most common spoken home language was Xhosa (49.36%) followed by English (30.89%) and Afrikaans (17.52%). As was expected, Xhosa was exclusively spoken by black women while coloured women were more likely to speak English (63.6%), followed by Afrikaans (36.4%).

SECTION B: Obstetric history

The majority of our respondents were primigravida (89.5%, n=281). Thirty participants (9.6%) were in their second pregnancy and 3 participants were in their third pregnancy. Two 16 year old women were in their second pregnancy, but had previously suffered a miscarriage. Black women were more likely to have a repeat teenage pregnancy, although this was not statistically significant (OR 1.49, 95%, CI 0.67 – 3.03).

Only 6% of participants were parous – 19 women already had children. Twelve patients had had one or two miscarriages and only 3 patients had previously had a termination of pregnancy.

SECTION C: Current pregnancy

The average gestational age at booking was 21.1 weeks with a range of 6 – 36 weeks. There was no statistical difference between black and coloured patients or between 16 year old patients and those older than 16.

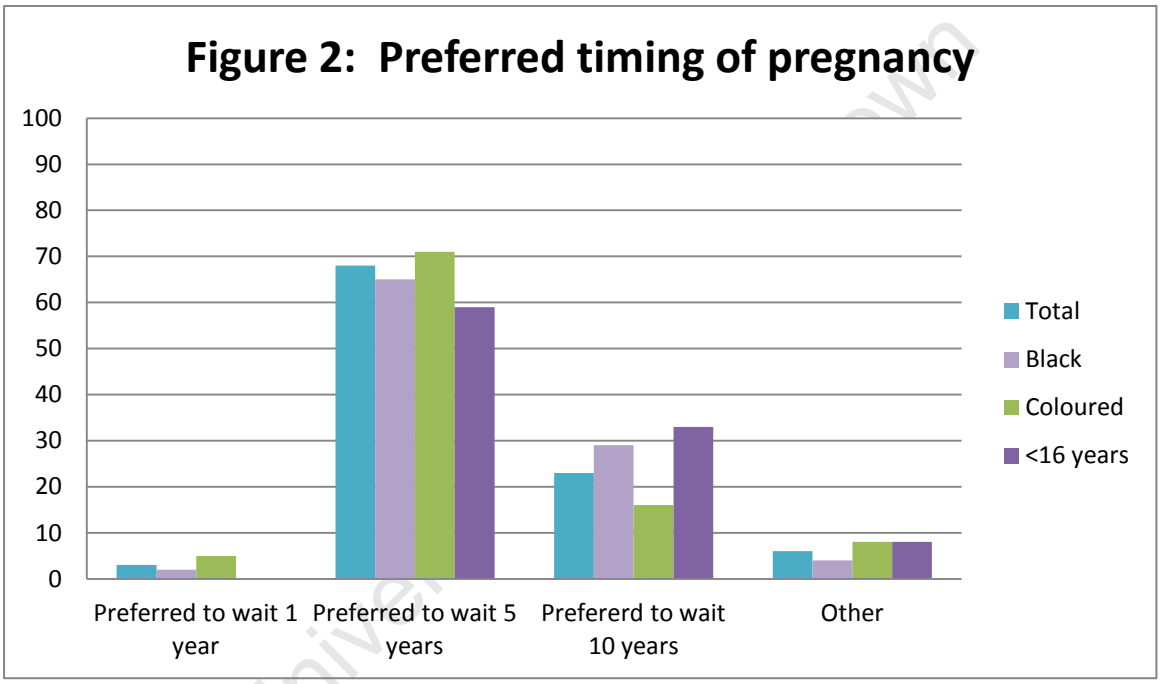
The average gestational age at time of interview was 28.8 weeks with a range of 8 – 43 weeks. The gestational age was obtained from the antenatal clinic card which had been calculated by the midwives and doctors.

<u>Timing of current pregnancy</u>

Most participants felt their pregnancies had occurred at the "wrong time" (n=240, 76.4%). Patients of 16 years of age were more likely to report that

their pregnancies occurred at the wrong time (OR 2.74, 95% CI 1.06 – 7.47). There was no significant difference between population groups.

When asked when they would have preferred to fall pregnant for the first time, 137 would have preferred to wait 5 years (67.82%) and 47 would have delayed their first pregnancy for 10 years (23.27%). Ninety-two percent of 16 year old patients would have waited between 5 and 10 years before their first pregnancy. There was no significant difference between population groups [Figure 2].



SECTION D: Family information

Marital status of parents

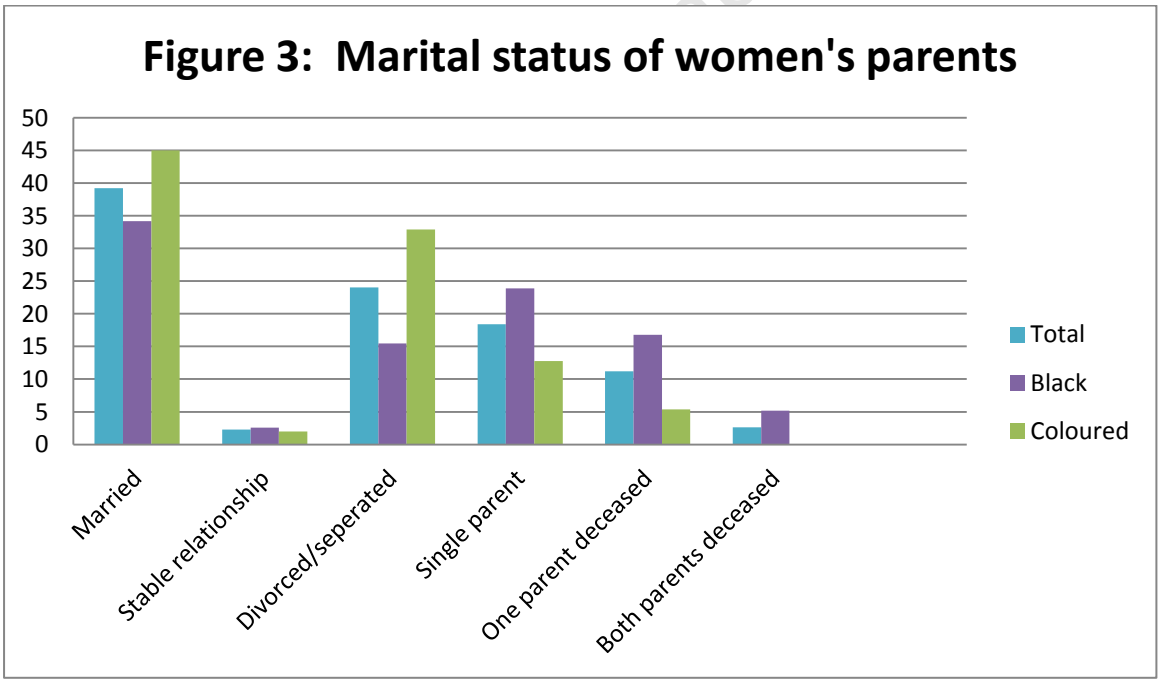
Twenty eight percent of women currently lived with both their parents, while 37.6% of women currently lived with a single parent (usually their mother). A third of women (33.8%) did not live with either of their parents. Fourteen percent of teenagers lived with a partner.

Only 39.2% of women had parents who were married at the time of interview. Many women had parents who were divorced or separated (23.25%, n=73),

18.15% (n=57) had a a single parent and 15% (n=47) had lost one or both of their parents. There were no statistically significant differences between 16 year old patients and those older than 16, but there were statistically significant differences between black and coloured women [Table 1].

Table 1: Marital status of women's parents

	Total		Black		Coloured		P value
	N	Percent	N	Percent	N	Percent	
Married	123	39.2	55	33.7	68	45.0	<0.05
Stable relationship	7	2.22	4	2.5	3	2.0	<1.00
Divorced/separated	73	23.3	24	14.7	49	32.5	<0.0001
Single parent	57	18.2	38	23.3	19	12.6	<0.05
One parent deceased	36	11.5	27	16.6	9	6.0	<0.005
Both parents deceased	11	3.5	11	6.8	0	0.0	0.001
Other	5	1.6	3	1.8	2	1.3	
Total	**314**	**100**	**163**	**100**	**151**	**100**	



Black women were more likely than coloured women to have been raised by a single parent (n=38,OR 2.18, 95% CI 1.15 – 4.15) and 4 times as likely to have either one or both parents who were deceased (n=38,OR 4.80, CI 2.13 – 11.13). Black women were also more likely to not be living with either parent at the

time of interview (n=67,OR 2.0, 95% CI 1.21 – 3.33) Coloured women were more likely to have parents who were married (n=68,OR 1.61, 95% CI 0.99 – 2.61) but twice as likely to have suffered divorce or separation in the family (n=49,OR 2.78, 95% CI 1.55 – 5.02). Coloured women were also more likely to be living with both of their parents at the time of interview (n=56, OR 2.24, 95% CI 1.32 – 3.81).

Siblings

We questioned the 235 women who had sisters as to previous pregnancies in the family. Of them, 55 (17.5%) knew of sisters that had been pregnant while still a teenager. This was more likely among black patients, though not statistically significant (OR 1.47, 95% CI 0.77 – 2.83).

Sixteen women (5.26%) knew of brothers who had fathered a pregnancy while still a teenager, but many did not have knowledge of their brothers' reproductive history.

Age at mother's first birth.

The mean age at the woman's mother's first birth was 20.8 years (range 13 – 44 years) meaning that 43.75% of patients had mothers who were in their teens when they had their first child (not necessarily the respondent). There were no significant differences between population groups.

Employment and financial independence

Twenty six women were employed at the time of interview and comprised nineteen coloured women and seven black women (OR 3.21. 95% CI 1.23 – 8.70).

Ten women considered themselves to be financially independent, while 289 (92%) were completely dependant on their parents or caregivers for financial support. Of these ten women, nine women were coloured and one was black.

Parental monitoring

Roughly half of all women considered their parent or caregivers to be stricter than their friends (43.1%). Coloured women were more likely to say that their parents were strict (OR 2.15, 95% CI 1.32 – 3.51)

We asked women whether their parents or caregivers monitored their social lives, school work and domestic arrangements. Most women considered themselves to be monitored with no significant difference between black and coloured women [Table 2].

Table 2: Monitoring by parents and caregivers

	N	Percent %
Is your social life monitored?		
Yes	256	81.8
Is your schoolwork monitored?		
Yes	267	85.3
Are your domestic arrangements monitored?		
Yes	278	88.8
Total	**313**	

SECTION E: Socio-economic

Housing

We enquired as to the type of dwelling the women occupied and found that just over half lived in a formal house (55.41%), 21% lived in informal housing and the rest in a semi-detached house (14%), flat (4.5%), "wendy house" (3.5%) or a room in the main dwelling, either with a separate or common entrance (1%). Please refer to Table 3 and Figure 4.

Coloured women were significantly more likely to live in a formal free standing or semi-detached house (OR 2.36, 95% CI 1.46 – 3.83).

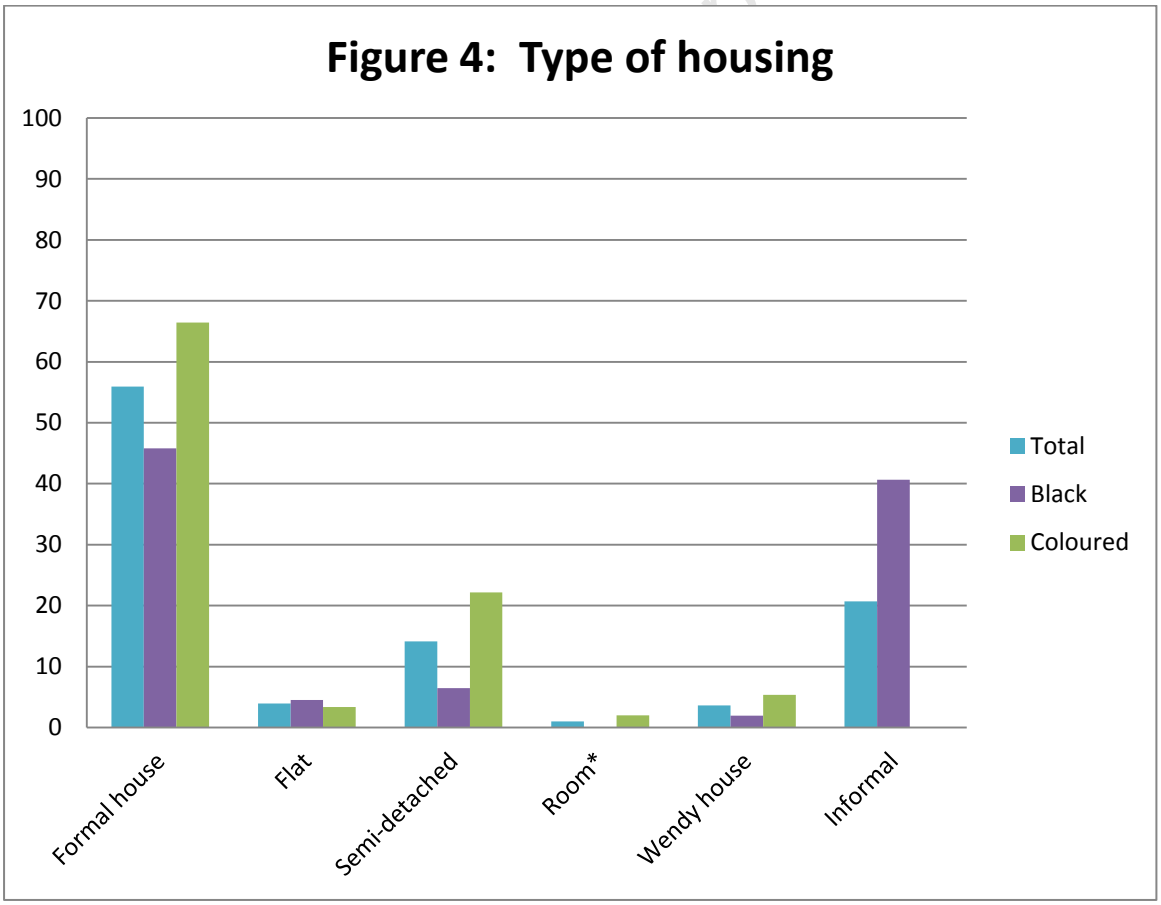
No coloured women lived in informal housing versus 40.5% of black women who did (OR inf, 95% CI 10.28 – inf). We defined informal housing as a 'shack' or house where the walls were made of corrugated iron, plastic or cardboard.

Table 3: Type of housing

	Total		Black		Coloured		P
	N	Percent	N	Percent	N	Percent	
Formal house	174	55.41	74	45.40	100	66.23	<0.0001
Flat	14	4.46	9	5.52	5	3.31	<0.5
Semi-detached	44	14.01	10	6.13	34	22.52	<0.0001
Room*	2	0.64	0	0.00	2	1.32	<0.5
Room#	1	0.32	0	0.00	1	0.66	<0.5
Wendy house	11	3.50	3	1.84	8	5.30	<0.1
Informal	66	21.02	66	40.49	0	0.00	<0.0001
Other	2	0.64	1	0.61	1	0.66	
Total	**314**	**100**	**163**	**100**	**151**	**100**	

*Room in main dwelling, separate entrance

#Room in main dwelling, common entrance



The average number of rooms in the dwelling was 3.5 (range 1 – 9).

We asked participants about access to drinking water and toilet facilities. Most women (66.9%) had indoor plumbing, 19.1% had an outside tap and 13.7% used a public tap.

Most women had a flush toilet in the main dwelling (65.6%); 28.7% used a flush toilet outside of the main dwelling ("portable toilet" in most cases), 1.6% had a pit latrine and 4.1% used a bucket.

Coloured women were significantly more likely to have a tap indoors (OR 30.23, 95% CI 12.69 – 75.48) and a flush toilet in the main dwelling (OR 28.37, 95% CI 12.43 – 67.23).

Table 4: Access to drinking water and toilet facilities

	Total		Black		Coloured		P
Water	**N**	**Percent**	**N**	**Percent**	**N**	**Percent**	
Indoor plumbing	210	66.88	66	40.49	144	95.36	<0.0001
Outside tap	60	19.11	54	33.13	6	3.97	<0.0001
Public tap	43	13.69	43	26.38	0	0.00	<0.0001
Other	1	0.32	0	0.00	1	0.66	
Total	**314**	**100**	**163**	**100**	**151**	**100**	
Toilet							
Flush indoors	206	65.6	63	38.7	143	94.7	<0.0001
Flush outdoors	90	28.7	83	51.0	7	4.6	<0.0001
Pit latrine	5	1.6	4	2.5	1	0.7	<0.5
Bucket	13	4.1	13	8.0	0	0.0	<0.0001
Total	**314**	**100**	**163**	**100**	**159**	**100**	

We enquired whether or not certain items could be found within the women's homes to gauge income bracket. Two hundred and ninety families owned a television set; of the 24 who did not, 21 of these were black families. Only 72 women had a landline telephone and there was a significant difference between black and coloured women (OR 7.30, 95% CI 2.01 – 31.45). Almost all women (99%) owned a cellular telephone. It was more common for black families not to own a computer or car compared to coloured families (OR 7.04, 95% CI 3.74 – 13.37, OR 6.69, 95% CI 3.67 – 12.29).

Table 5: House hold appliances

Does not own a:	Total		Black		Coloured		P
	N	Percent	N	Percent	N	Percent	
TV	24	7.64	21	12.88	3	1.99	<0.0001
Landline	242	77.07	155	95.09	87	57.62	<0.0001
Cellphone	4	1.27	2	1.23	2	1.32	<1.0
Computer	229	72.93	146	89.57	83	54.97	<0.0001
Car	221	70.38	143	87.73	78	51.66	<0.0001

Principal component analysis suggests that the summary measure of wealth is best indicated by housing type. We used the variables pertaining to type of house, number of rooms, materials of the roof and walls as well as basic sanitation to produce a composite score of wealth based on housing type. We divided women into 4 quintiles of wealth based on these findings.

Table 6: Wealth quintiles based on housing type

	Total		Black		Coloured		P
	N	Percent	N	Percent	N	Percent	
Quintile 1 (richest)	79	25	12	7.36	67	44.37	<0.0001
Quintile 2	78	25	30	18.40	48	31.79	<0.0001
Quintile 3	79	25	50	30.67	29	19.21	<0.05
Quintile 4 (poorest)	78	25	71	43.56	7	4.64	<0.0001
Total	**314**	**100**	**163**	**100**	**151**	**100**	

Black women were significantly more likely to be in the poorer two quintiles (OR 9.2, 95% CI 3.4 – 15.93).

Using household size and number of earners in the house, we calculated a ratio of earners to household members. Findings were categorised into 4 categories showing a percentage of household members who were earning a salary. This includes people working full time, part time and temporary and casual work.

Table 7: Percentage of household members earning an income

	Total		Black		Coloured		P
	N	Percent	N	Percent	N	Percent	
<25%	83	26.43	53	32.51	30	19.87	<0.05
25 – 50%	112	35.67	59	36.20	53	35.10	<1
50 – 75%	98	31.21	46	28.22	52	34.44	<1
>75%	21	6.69	5	3.07	16	10.60	<0.05
Total	**314**	**100**	**163**	**100**	**151**	**100**	

Coloured women were almost twice as likely to live in a household where more than 50% of the members earned an income (OR 1.80, 95% CI 1.11 – 2.93) and more than three times as likely to have more than 75% of the household earning a salary compared to black homes (OR 3.75, 95% CI 1.25 – 12.040.

SECTION F: Relationships and support

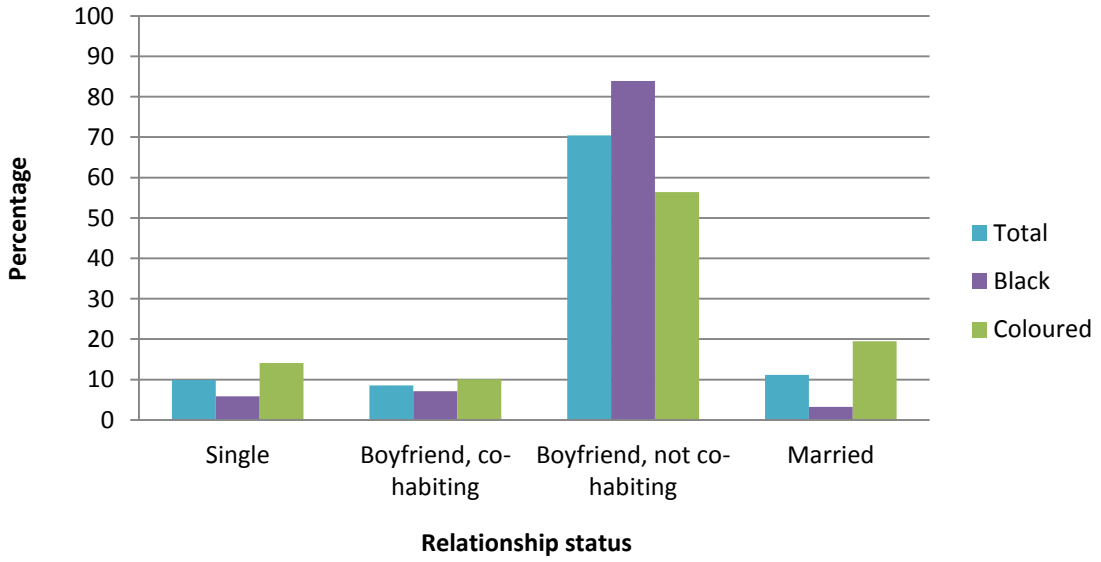
We assessed the relationship status of participants and found that the majority of women interviewed were in stable relationships with a boyfriend, but not co-habiting (70.1%). In the study population, 11.8% were married, 9.9% were single and 8.3% were co-habiting with a boyfriend. There were statistically significant differences between black and coloured women. Coloured women were four times as likely to be married (OR 4.61, 95% CI 1.93 – 11.38), but also twice as likely to be single (OR 2.47, 95% CI 1.06 – 5.86). Most black women had a partner but were not co-habiting (82.2%)[Table 8 and Figure 5].

Table 8: Current relationship status

	Total		Black		Coloured		P
	N	Percent	N	Percent	N	Percent	
Single	31	9.87	10	6.13	21	13.91	<0.05
Boyfriend*	26	8.28	11	6.75	15	9.93	<0.5
Boyfriend#	220	70.06	134	82.21	86	56.95	<0.0001
Married	37	11.78	8	4.91	29	19.21	<0.0001
Total	**314**	**100**	**163**	**100**	**151**	**100**	

*co-habiting #not co-habiting

Figure 5: Current relationship status



The average age difference between the woman and her partner was 3.4 years (range -1.7 to 15 years). Twenty five percent (n=71) of women had partners who were more than 5 years older than they were.

There were statistically significant differences between black and coloured women. The average age difference for black women was 4.3 years and for coloured women was 2.4 years ($p<0.001$). There were no differences between younger and older teenagers.

Of the 283 women who had partners, only 5 stated that their partner was not the father of the current pregnancy.

The average duration of the relationship was 2.4 years (range 0.2 – 9 years). There were no differences between population groups.

Support

The majority of women told their partner first about the pregnancy (43.3%), followed by their parents (21.7%), other relatives (11.8%), friends (10.5%) siblings (7.32%) and grandparents (1.91%). Most women felt they had enough support in the pregnancy with only 34 (10.8%) feeling unsupported. Black women were three times as likely to feel unsupported in the pregnancy (OR 3.39, 95% CI 1.40 – 8.46).

Women were asked to name all the people who would give them emotional and financial support throughout their pregnancy and after birth. Parents and partners were most often named as sources of support.

Coloured women had more support in general, particularly from their parents, partners and partners' family. Black women were more likely to rely on sisters and other relatives, usually aunts, for support. Only 5 women said they would rely on the Child Grant for financial support.

Table 9: Emotional and financial support

	Total		Black		Coloured		P
Emotional support							
	N	**Percent**	**N**	**Percent**	**N**	**Percent**	
Partner	148	47.13	56	34.36	92	60.93	<0.0001
Mother	191	60.83	85	52.15	106	70.20	<0.005
Father	42	13.38	11	6.75	31	20.53	<0.0001
Sibling	45	14.33	28	17.18	17	11.26	<0.05
Grandparent	16	5.10	7	4.29	9	5.96	0.5
Other relative	44	14.01	31	19.02	13	8.61	<0.05
Friend	20	6.37	7	4.29	13	8.61	<0.5
Partners family	17	5.41	3	1.84	46	9.27	<0.05
Unknown	10	3.18	6	3.68	4	2.65	<1
Financial support							
Partner	177	56.37	79	48.47	98	64.90	<0.05
Mother	177	56.37	82	50.31	95	62.91	<0.05
Father	96	3.57	43	26.38	53	35.10	<0.1
Sibling	23	7.32	20	12.27	3	1.99	<0.0001
Grandparent	15	4.78	9	5.52	6	3.97	0.5
Other relative	29	9.24	21	12.88	8	5.30	<0.05
Partner's family	46	14.65	20	12.27	26	17.22	<0.5
Support self	16	5.10	4	2.45	12	7.95	<0.05
Child grant	5	1.59	3	1.84	2	1.32	<1
No support	1	0.32	1	0.61	0	0	<1
Unknown	2	0.64	0	0	2	1.32	<1

269 women expected to have a birth companion at the time of delivery (85.7%). Again black women were significantly more likely to be alone or not to know who would support them during delivery (OR 11.92, 95% CI 1.59 – 248.56).

SECTION G: Perinatal Mental Health Score.

118 women (37.89%) had composite scores of 2 or higher, indicating that they qualified for intervention by social workers and/or psychologists. There were statistical differences between population groups with black women more likely to need intervention, but no statistical differences between younger women and those older than 16 years. The results from the individual questions are as follows:

1. 14.3% of women reported that someone at home was violent towards them. This was more likely amongst black women (OR 3.86, 95% CI 1.75 – 8.70).
2. 13.0% of women did not have a supportive partner. This was more likely amongst coloured women, though not statistically significant (OR 1.82, 95% CI 0.89 – 3.76).
3. 30.9% of women were not pleased about the current pregnancy. This was four times more likely amongst black women (OR 4.29, 95% CI 2.44 – 7.60).
4. 29.6% of women reported that difficult things had happened in the last year with no significant differences between groups.
5. 32.8% of women had suffered from depression, anxiety or panic attacks. This was similar for all women.

Table 10: Perinatal Mental Health Score

	Total		Black		Coloured		P
	N	Percent	N	Percent	N	Percent	
1. Is someone at home violent towards you?							
Yes	45	14.3	35	21.5	10	6.6	<0.0001
2. Is your partner supportive?							
No	41	13.1	16	9.8	25	16.6	<0.1
3. Are you pleased about this pregnancy?							
No	97	30.9	73	44.8	24	15.9	<0.0001
4.Have you had some difficult things happen in the last year?							
Yes	93	29.6	44	27.0	49	32.5	<0.5
5. Have you had problem with depression, anxiety or panic attacks before?							
Yes	103	32.8	58	35.6	45	28.8	<0.5

SECTION H: Substance use

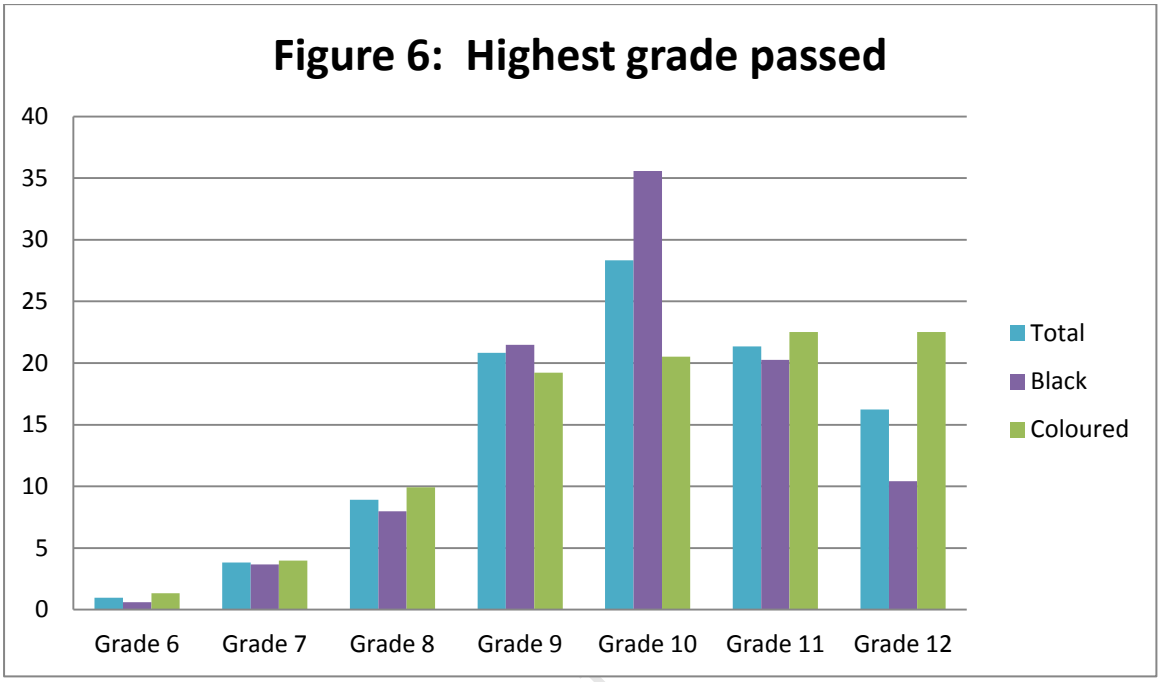
Most women had never smoked, although 18.5% admitted to smoking during their current pregnancy and 20.1% stopped during the pregnancy. Coloured women were far more likely to smoke; 71% were either smoking currently or had stopped during the pregnancy compared to 8.6% amongst the black patients (OR 25.58, 95% CI 12.95 – 52.34).

We enquired as to alcohol use and found that only 2 women (0.6%) were drinking regularly during the pregnancy, 7.3% were drinking occasionally during the pregnancy, 45.2% had stopped drinking. 46.8% had never used alcohol. There were no statistically significant differences between black and coloured women.

Only one woman admitted to recreational drug use during the pregnancy. Her drug of choice was 'crystal meth'. Eighteen women had used recreational drugs prior to the pregnancy – these drugs included cannabis and methamphetamines ('tik') Of these women, fifteen were coloured and three were black (OR 6.32 – 95% CI 1.69 – 27.91). The majority of patients had never used recreational drugs.

SECTION I: Education and future plans

The average highest grade passed was grade 10 (standard 8). The range was grade 6 to grade 12. Coloured women were twice as likely to have completed matric at the time of interview (OR 2.50, 95% CI 1.27 – 4.93).



Of the 314 women interviewed, 43.6% were currently attending school (69% of 16 year olds were in school). Black women were more than twice as likely to be in school at the time of interview (OR 4.6, 95% CI 2.76 – 7.69).

Table 11: School attendance

	Total		Black		Coloured		P
	N	**Percent**	**N**	**Percent**	**N**	**Percent**	
Attending school	137	43.63	99	60.74	38	25.17	<0.0001
Not attending school	177	56.37	64	39.26	113	74.83	<0.0001
Total	**314**	**100**	**163**	**100**	**151**	**100**	

We enquired as to reasons for leaving school. The most common reason was pregnancy (31.1%), followed by completion of school (24.9%), dislike of school (14.1%) and lack of funds (8.5%) [Table 12].

Black women were more likely to have left due to pregnancy (OR 1.48, 95% CI 0.70 – 2.88) and lack of funds (OR 4, 95% CI 1.18 – 14.25). Other reasons cited by black women included illness, difficulties at home, marriage, failure of a grade and a previous pregnancy.

Coloured women were more likely to have completed Grade 12 (OR 1.48, 95% CI 0.67 – 3.31), but were also more likely to have left due to dislike of school (OR 3.42, 95% CI 1.04 – 12.44). Other reasons cited by coloured women for leaving school included failure of a grade, followed by difficulties at home.

Table 12: Reason for school leaving

	Total		Black		Coloured		P
	N	**Percent**	**N**	**Percent**	**N**	**Percent**	
Completed	44	24.86	13	20.31	31	27.43	<0.5
Pregnancy	55	31.07	23	35.94	32	28.32	<0.5
Seek employment	7	3.95	1	1.56	6	5.31	<0.5
No funds	15	8.47	10	15.63	5	4.42	<0.05
Asked to leave	1	0.58	0	0.00	1	0.89	<0.5
Didn't enjoy	25	14.12	4	6.25	21	18.58	<0.05
Other	30	16.95	13	20.31	17	15.04	
Total	**177**	**100**	**64**	**100**	**113**	**100**	

Women were asked what they planned to do after the pregnancy. Most women planned to return to school or study further (74.2%). Some planned to seek employment (16.6%) while only 5 women (1.6%) planned to stay at home full time. Fourteen women who answered 'other' didn't know what they would do after the pregnancy and 8 were already working and planned to return to work. Black women were more likely to return to school (OR 3.5, 95% CI 1.97 – 6.28) and coloured women were more likely to seek employment after the pregnancy (OR 3.53, 95% CI 0.41 – 79.68).

SECTION J: Contraceptive use and knowledge

Women were asked, without prompting, to name methods of contraception they had heard of and methods of contraception they had used in the past.

The most common form of contraception of which patients had knowledge was injectable hormonal contraception (87.3%), followed by the male condom (62.7%). Other methods mentioned were the oral contraceptive pill (59.6%), female condom (20.1%) and intra-uterine contraceptive device (7%). Five patients named termination of pregnancy as a method of contraception. Emergency contraception was cited by 18 women. Only 22 women (7%) said abstinence could prevent pregnancy.

Black women were more likely to mention the female and male condom as methods of contraception, whereas coloured women patients were more likely to know about the oral contraceptive pill, IUCD, sterilisation and emergency contraception.

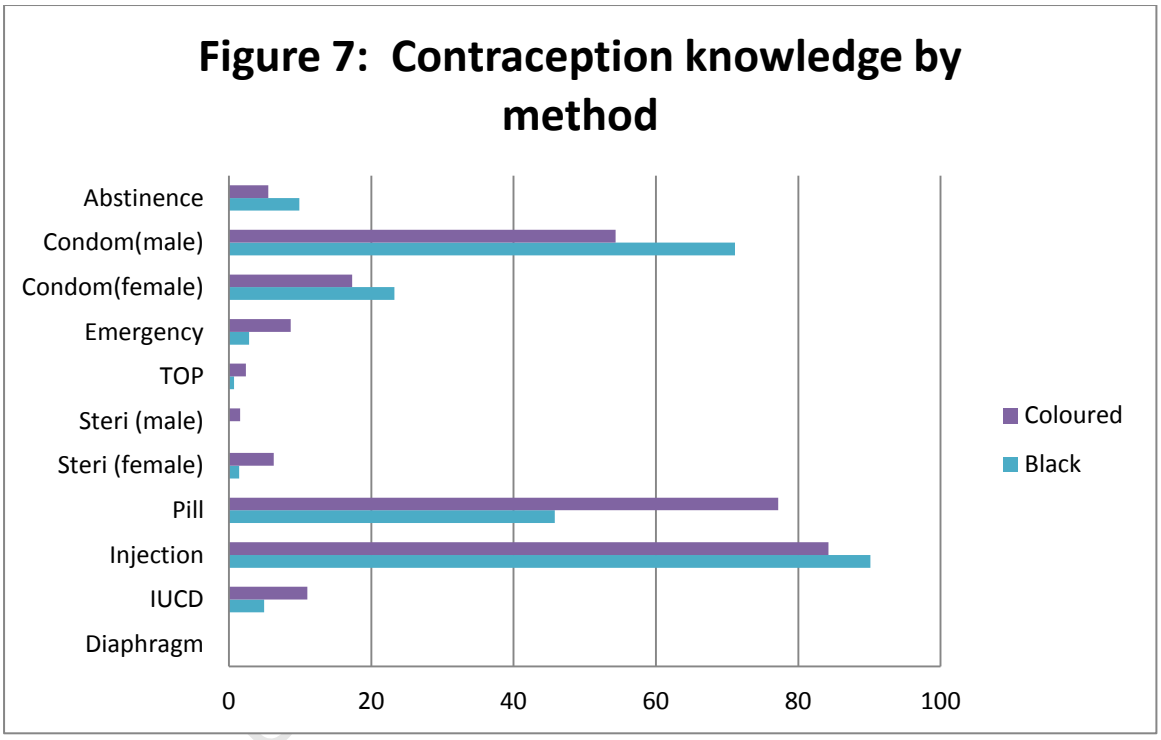
Table 13: Contraception knowledge by method

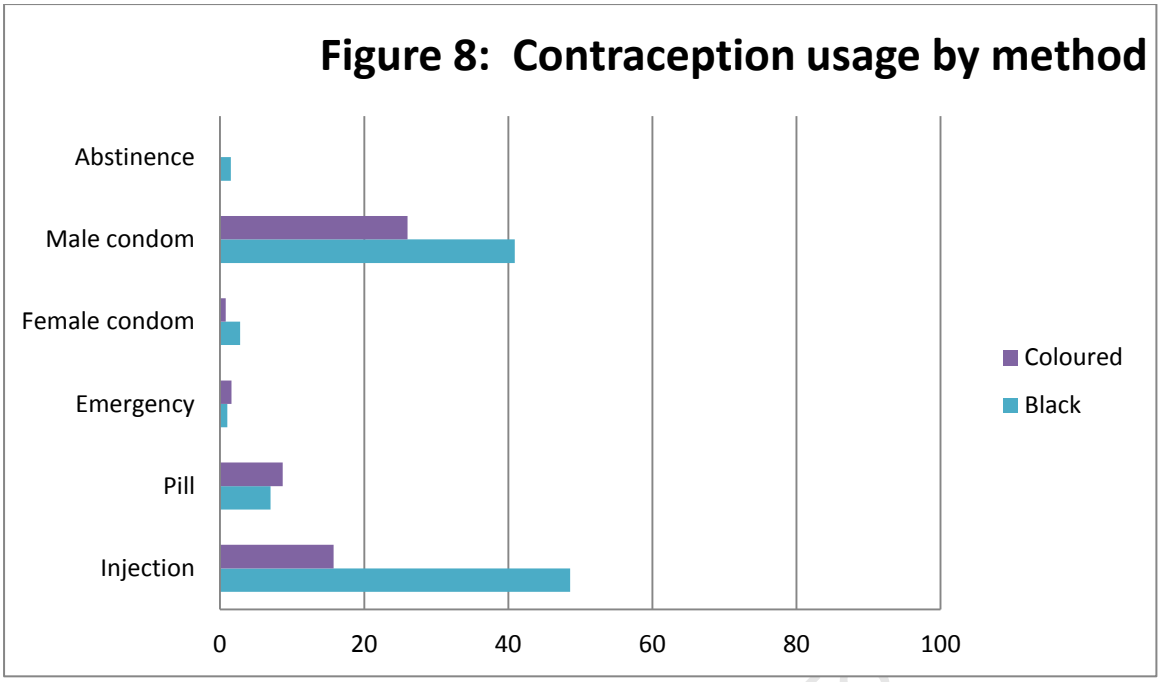
	Total		Black		Coloured		P
	N	Percent	N	Percent	N	Percent	
Diaphragm	4	1.27	0	0	4	2.65	<0.05
IUCD	22	7.01	7	4.29	15	9.93	0.05
Injection	274	87.26	147	90.18	127	84.11	<0.5
Pill	187	59.55	73	44.79	114	75.50	<0.0001
Sterilisation (female)	11	3.50	2	1.23	9	5.96	<0.05
Sterilisation (male)	2	0.64	0	0.00	2	1.32	<0.5
TOP	5	1.59	2	1.23	3	1.99	<1.0
Emergency	18	5.73	4	2.45	14	9.27	<0.01
Condom(female)	63	20.06	38	23.31	25	16.56	<0.5
Condom(male)	197	62.74	114	69.94	83	54.97	<0.01
Abstinence	22	7.01	15	9.20	7	4.64	<0.5

We enquired further as to which methods of contraception women had used in the past. Overall contraception usage was very low. The most common forms of contraception used were the male condom (n=106,33.8%) and injectable contraception (n=98, 31.2%). Twenty three women had used the oral contraceptive pill.

Table 14: Contraception usage by method (in the past)

	Total		Black		Coloured		P
	N	Percent	N	Percent	N	Percent	
Injection	98	31.21	78	47.85	20	13.25	<0.0001
Pill	23	7.32	12	7.36	11	7.28	<1.0
Emergency	3	0.96	1	0.61	2	1.32	<1.0
Condom(female)	8	2.55	7	4.29	1	0.66	<0.05
Condom(male)	106	33.76	65	39.88	41	27.15	<0.05
Abstinence	2	0.64	2	1.23	0	0	<0.5





Black women were significantly more likely to have used injectable contraception (n=78,OR 6.0, 95% CI 3.31 – 10.99) and the male condom (n=65,OR 1.78, 95% CI 1.08 – 2.95) in the past.

Only 15.3% of black women (n=25) and 8.6% of coloured women (n=13) stated they were using contraception at the time of conception (OR 1.92, 95% CI 0.90 – 4.16). Only 4 patients aged 16 years were using contraception. Patients more commonly used the injectable contraceptive (4.8%, n=15) and male condom (4.5%, n=14).

Despite not using contraception, 43% of women were concerned about the possibility of an unintended pregnancy. There were no differences between age groups but coloured women were more likely to be concerned about the possibility of an intended pregnancy (OR 2.47. 95% CI 1.52 – 4.01).

<u>Emergency contraception</u>

We asked about the knowledge, use and accessibility of emergency contraception and found that 40.1% of women had heard of emergency contraception, 8.3% had considered using it in the past and 34.1% of women patients knew where to access it. Only 3 women had ever used emergency contraception. Coloured women were significantly more likely to be aware of

emergency contraception and consider its use (OR 5.87, 95% CI 3.46 – 10.00, OR 2.17, 95% CI 0.88 – 5.47).

Termination of pregnancy.

Eighty three women (26%) had considered a termination of the current pregnancy. There was no difference between black and coloured women patients.

Accessibility of contraception and contraceptive services.

Most women found it easy to get contraception (61.2%). The most common place to access contraception was family planning clinics (n=120, 38.2%) but other outlets were mentioned [Table 15].

Table 15: Access of contraception

	Total		Black		Coloured		P
	N	Percent	N	Percent	N	Percent	
Family Planning clinic	120	38.22	87	53.37	33	21.85	<0.0001
Day Hospital	13	4.14	10	6.13	3	1.99	<0.1
GP	1	0.32	0	0	1	0.66	<0.5
School	4	1.27	3	1.84	1	0.66	<0.5
Youth centre	17	5.41	11	6.75	6	3.97	<0.5
Other	30	9.55	14	8.59	16	10.60	
N/A	129	41.08	38	23.31	91	60.26	
Total	**314**	**100**	**163**	**100**	**151**	**100**	

It was generally felt by the participants that information regarding contraception was readily available (n=233, 74.2%). Only 43 women felt contraceptive services to be inadequate or not user friendly. Overall, 92.7% of women stated they would value more information about contraception and sexual and women's health.

Black women found it easier to access contraception (OR 3.25, 95% CI 1.97 – 5.37), were more likely to feel that information regarding contraception was readily available (OR 3.25. 95% CI 1.97 – 5.37) but more likely to feel that

contraceptive services were inadequate and not user friendly (OR 4.16, 95% CI 1.83 – 9.73).

SECTION I: Abuse

We asked women if they had ever been physically, verbally or sexually abused. 12.7%(n=40) of women admitted to physical abuse, 18.5%(n=58) to verbal abuse and 9.2%(n=29) to sexual abuse. In total, 31.2% (n=98) of women had suffered at least one type of abuse in their lifetime. There were no differences between population groups or age groups.

The most common perpetrators of physical abuse were the current partner, ex-partner and parents. Women were more likely to be physically abused by their mothers and members of the extended family. Sexual abuse was mainly by strangers and male members of the extended family (mainly uncles and in-laws).

Only 7 women said that the current pregnancy was a result of non-consensual sex.

Overall, 30% of the above mentioned incidents were not reported. All of these women were referred to the social worker.

Table 16: Abuse

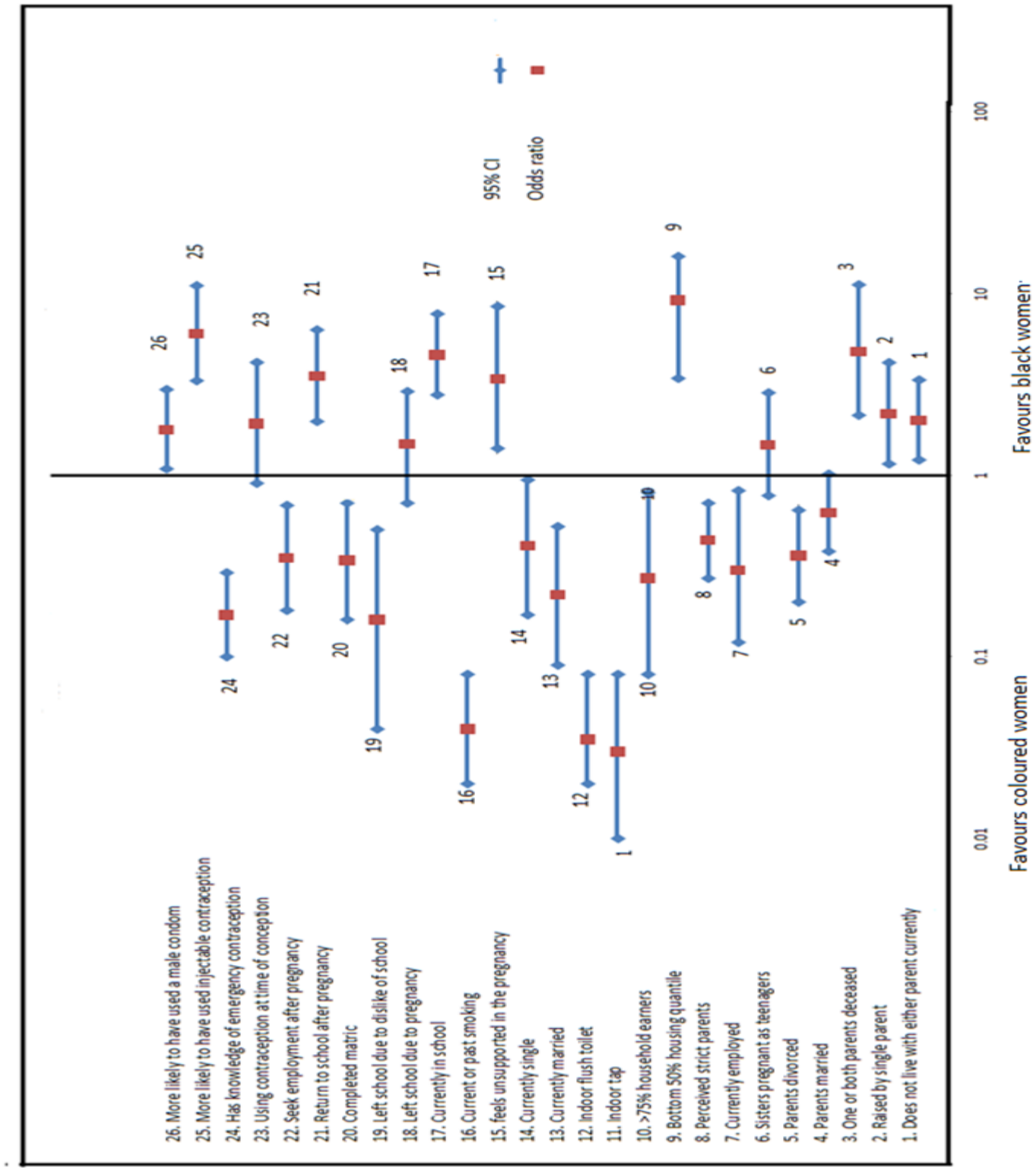
	Total		Black		Coloured		P
Abuse	**N**	**Percent**	**N**	**Percent**	**N**	**Percent**	
Physical	40	12.74	22	13.50	18	11.92	<1.0
Verbal	58	18.53	31	19.02	27	18.00	<1.0
Sexual	29	9.24	15	9.20	14	9.27	<1.0
Any form	98	31.21	55	33.74	43	28.48	<0.5
All forms	4	1.27	2	1.23	2	1.32	1
Incident reported	69	70.4	43	78.18	26	60.46	<0.5

Summary of results :[Figure 9: Summary graph of differences between black and coloured women]

- 89.49% (n=281) of women were primigravida
- 10.51% (n=33) had had a repeat teenage pregnancy
- 76.43% (n=240) women felt their pregnancies had occurred too early and 97.03% of them would have preferred to wait at least 5 years before their first pregnancy
- There were high levels of divorce among the parents of these young women (23.25%, n=73) and 14.96% of women(n=47) had lost one or both of their parents
- 17.52% (n=55) women had sisters who had been pregnant as teenagers and 43.75% had mothers who were teenagers at the time of their first birth
- 21.02% (n=66) of patients lived in informal housing without access to basic amenities
- 78.34% (n=246) of women were in relationships with their partners, but unmarried
- The average age difference was 3.4 years between the woman and her partner
- 89.17% (n=280) of patients felt they had enough emotional support
- 37.89% (n=119) of patients qualified for psychological and social work intervention based on the Perinatal Mental Health Score
- There were high levels of smoking and alcohol use but low levels of recreational drug use
- 56.37% (n=177) of women were not in school at the time of the interview
- Pregnancy was cited as a reason for leaving school in 31%(n=55) of cases
- Contraceptive knowledge and usage was very poor
- Patients were most likely to have used injectable contraception or the male condom as methods of contraception in the past
- Contraceptive services were deemed to be adequate for the majority of patients
- Most patients would value more information about contraception, sexual and women's health.

- 31.2% of women had been a victim of either physical, verbal or sexual abuse.

Figure 9: Summary graph of differences between black and coloured women



CHAPTER 4: DISCUSSION

This research is an exploratory study into the background of pregnant teenagers in our obstetric service. Its aim was to enable us to have a better contextual understanding of these patients and to improve obstetric services, counselling and contraception provision and to assist us in formulating prevention and intervention programmes. The comparison of black and coloured women has provided us with very useful data to help understand societal and cultural norms and differences which should be taken into account when explaining the high rates of teenage pregnancy in the Cape Town area.

It was unfortunate that we were not able to include patients younger than 16 years of age as reported in the methodology chapter but ethical constraints make recruitment of these patients without parental consent difficult. In addition there are difficulties in reporting and following up each case as stipulated in the Sexual Offences Act. It must be noted however, that these patients were all seen by a social worker antenatally, who would report these cases to the proper authorities and arrange for appropriate counselling and intervention.

We analysed 16 year olds separately and found, with the exception of schooling, no significant differences between this younger group of patients and those older than 16 years.

It is very disturbing to find that the majority of patients believed their pregnancies happened at the wrong time and most would have preferred to wait at least 5 years before pregnancy. Nearly a quarter of women (n=47) felt their first pregnancy had occurred 10 years too early. These teenage years in a women's life are central to education completion and career development and enable young women to achieve personal independence and some degree of financial security. The loss of these crucial years to early child bearing can have far reaching consequences for both the mother and her child. Hobcraft and Keirnan, in research conducted in Britain, showed that , compared to women aged 23 – 32 years, teenage mothers are eight times as likely to have been

single parents by the age of 33 and are five times as likely to have a subsequent extra-marital birth. They are four times as likely to live in social housing at 33 years of age and to claim benefits. Moreover teenage mothers were almost twice as likely to report general poor or fair health and low life satisfaction scores at age 33 [63]. These data show that the consequences of teenage pregnancy, confounded by poverty, have effects which can persist for more than 10 years after the teenage birth.

Just over half of the patients (57.96%, n=182) interviewed came from homes where their parents were married or in a long term stable relationship. Many respondents had suffered through divorce or separation of their parents or had been brought up in single parent households. Fifteen percent of patients had lost one or both of their parents.

This is in keeping with data from Bonnell et al, from Britain, who found a 2.34 increase in the relative risk of teenage pregnancy in one parent versus two parent households. Moreover, pregnancy is more common in any family which has suffered a loss of stability such as death, divorce or separation [29]. It was interesting to note that divorce was 2.2 more common in coloured families compared with black families, but that only 12.6% of coloured women were raised by single parents. In comparison, black patients, were 1.8 times more likely to have been raised by single parents, despite the divorce/separation rate being lower. Only 9 coloured women had lost a parent compared with 34 black women, who had lost one or both of their parents.

Moore and Chase-Lansdale, from the United States, advanced theories as to why pregnancy rates are higher among teenagers raised by single parents. The first theory is the **socialisation hypothesis** where parents socialise their children for appropriate sexual behaviour through norms they teach and that children may pattern their own sexual activity on that of their parents. The second is the **supervision and monitoring hypothesis** where single parents may spend less time at home, work full time and may have more than one job thereby giving their children the opportunity to engage in unmonitored sexual activity. Lastly is the **marital transition hypothesis** which suggests that the negative effect of single parent households is due to the instability brought on

by parental separation. This often forces children to grow up quickly and assume more adult roles, thereby engaging in earlier sexual activity [30].

Our finding that 17.5% of patients had sisters who had been pregnant or had a child as a teenager is in keeping with the literature. East et al, in research conducted in California, found a 1.8 – 2 fold increased rate of pregnancy among the sister of pregnant teens[41]. It is important to bear in mind that 235 of our patients have sisters who are now at double the risk of pregnancy and potentially pose an additional social and financial burden on the family.

The mother's influence on the timing of teen pregnancy has been well described and our finding that almost half our patients had mothers who had had a teen birth supports this. Our numbers are slightly lower than those quoted by Smith et al. In that study only the index patient was considered and not older siblings who may have been a product of a teen birth[2]. Had the same method been used it is likely that Smith et al would have found higher numbers of women whose mother had had a teen birth. The increased likelihood of teenage pregnancy among the daughters of teen mothers can be explained partly by economic instability brought on by teenage pregnancy through lack of education and job procurement and partly by the mother's reported values about sex and relationships which affect the onset of intercourse[39].

Over 80% of our young respondents considered themselves to be monitored, indicating that their parent or caregivers were taking an active role in their social, school and domestic life. Despite this perceived monitoring, these women became pregnant. This may be due to teenagers acting out against their parents or caregivers or less supervision than reported. Our study found more perceived 'strictness' than previously quoted by Vundule et al[5].

Socio-economic

We explored several factors to indicate socio – economic status. These included type of housing, materials of which the house was built, access to basic sanitation, the ownership of certain goods and the percentage of wage earners to people in the household. We did not ask directly about income as we felt that these young women are, for the most part, not contributing to family income and may not be aware of the financial position of the family.

We therefore found it necessary to create indicators of wealth to gauge the approximate income bracket of the household.

It is concerning that 40% of our black patients are living in informal housing with over 60% lacking basic amenities such as indoor plumbing for drinking water and an indoor flush toilet. With the exception of cellular telephones, household items such as a television set, landline telephone, computer and motor vehicle were found significantly less frequently in the houses of black women compared with coloured women. Moreover, using principal component analysis to determine summary measures of wealth and place the respondents into wealth quintiles, black women were significantly more likely to be in the lower two quintiles (OR 9.2, 95% CI 3.4 – 15.93).

Vundule et al, who studied teenagers from Khayelitsha in the Cape Town area, similarly found that pregnant teenagers were more likely to have fewer rooms at home, a larger household, to have houses not made of brick and higher levels of unemployment in the household compared to non-pregnant controls[5]. Goicolea et al from Ecuador also reported that poverty increases the risk of teenage pregnancy although this is a risk factor outside of the young women's control. The authors state that this is a reflection of how social, political, and economic factors may influence the reproductive life of young women[31]. Furthermore, it is important to consider that not only is teenage pregnancy more common in lower income families, but that the extra burden of unplanned pregnancies and children to raise may prove to be financially catastrophic.

Relationships and support

Most of our patients were in relationships with a boyfriend and the average duration of this relationship was 2.4 years. Eighteen women had been with their current partner for over 5 years, meaning they considered themselves to be in a romantic relationship before the age of 13 years. We did not include a question on sexual debut in this study, but it would be interesting to note at what age these patients became sexually active.

The average age difference between the patient and her partner was 2.4 years which is slightly less than previously quoted by Vundule et al, who studied pregnant teenagers in a similar setting to ours[5]. In that study, the average age difference between the women and her current boyfriend was 3.5 years for those women who were pregnant versus 2.7 years in non-pregnant controls, which was statistically significant. In our study, 33 % had partners who were 5 years or more older and 13% had partners more that 10 years their senior. In research conducted in the Cape Town area, Jewkes et al found that pregnancy was more likely among young women with older boyfriends and this may be due to power inequalities in these relationships and exploitation of these young women[35].

Luke conducted a study examining age and economic asymmetries in the sexual relationships of adolescent girls in Sub-Saharan Africa and cited the following reasons as to why young women would engage in sexual relationships with much older men. Older men are perceived as more marriageable, provide more financial security and ultimately support the women should she become pregnant. Financial benefits include assistance with economic survival, a way to secure long-term opportunities and increasing status amongst one's peers. The adolescent's desire for status and gifts seem to be more common than fulfilling basic needs due to poverty. Men perceive younger women to be more willing to engage in regular sex and enhance their status and masculinity and they prefer younger women for non-marital relationships[64].

Perinatal Mental Health Score.

The Perinatal Mental Health Score was created by the Perinatal Mental Health project in 2002 and launched at Liesbeeck Midwife Obstetric Unit at Mowbray Maternity Hospital. Three questionnaires are administered routinely to all patients who book at Liesbeeck MOU, MMH , False Bay Hospital and Retreat MOU and consist of the Edinburgh Depression Scale, Risk Factor assessment and Self-Reporting Questionnaire. The Risk Factor Assessment currently consists of 11 questions which are answered with either a 'yes' or 'no' to gauge risk factors for depression. It has not formally been tested but has been in use

since 2002 and has proved to be a valuable mental health screening tool. We elected to use the 5 question Risk Factor Assessment (in use at the start of the Perinatal Mental Health Project), with a score of greater than two indicating need for referral.

Forty percents of patients scored 2 or greater, meaning that they are at risk of mental distress during or after the pregnancy, particularly postpartum depression. We suspect that there will be a higher rate of post partum depression among our patients particularly the group of women living in poor social circumstances without support and we hope that the social work interventions which are in place to follow up this vulnerable group of young women will prove effective.

Substance use

Smoking during the current pregnancy was reported by 18.5% of patients while a further 20% had stopped during the pregnancy and that 61.5% of women interviewed had never smoked. This is in keeping with South African data from King et al who interviewed 1328 non – pregnant students in Cape Town and found that 60.7% of women had never smoked cigarettes[65]. A similar study to ours conducted by Smith and Grenyer in Australia, reported smoking rates among pregnant teenagers to be 54.9%[2]. What is particularly relevant in our data are the high rates of smoking reported by coloured women. Coloured women were 8 times more likely to smoke and 37.8 %(n=57) were smoking in the current pregnancy compared to only 0.6% (n=1) of black patients. Less than one third of coloured women had never smoked cigarettes. This is partly described in a South African study, conducted in Cape Town by King et al, who speculate a pattern amongst coloured youths that begins in the early teenage years and indicates a link between parental and adult smoking behaviours that is related to strong social and cultural practices within the coloured community[65].

Only 2 women reported regular drinking in the pregnancy while a further 7.3% (n=23) reported that they did consume alcohol, though not often, usually meaning occasional use on weekends. Over half the women reported they had used alcohol prior to the pregnancy (45.2%). Flisher et al studied substance

use among adolescents in Cape Town and reported alcohol use among young women to be 16% for black grade 8 students which increased to 18% for students in grade 11. For coloured women, 32.5% of grade 8 students used alcohol, which increased to 55.6% by grade 11[65]. We found no differences between population groups in our study, but this may be that we were only studying pregnant teenagers who represent an at risk group.

Use of recreational drugs was low with only 6% of patients reporting current or past use of recreational drugs. We feel that this was under reported as rates of as high as 58% for methamphetamine ('tik') use amongst out of school adolescents has been described by Wechsberg et al. In their study, methamphetamine use was significantly higher among Coloured females (87%) than among Black females (11%). Furthermore, adolescents who used methamphetamines were more likely to use alcohol and other recreational drugs and six times more likely to not use a condom during their last sexual encounter[67]. Similarly cannabis use was reported as 27% by Flisher et al. Furthermore, Flisher et al suggest there is a protective, though undetermined, factor that prevents black female adolescents from reaching the higher rates of substance use demonstrated by black males and coloured students of both genders and this is an area for further research[66].

Education and future plans

It is reassuring that almost half our patients were in school at the time of the interview and 74% planned to complete their studies post delivery. It is very interesting to note the different trends in school attendance between black and coloured patients. According to Marteleto et al from South Africa, black women are more likely to combine pregnancy and schooling. This study showed that after a teenage pregnancy, black women attained, on average, an additional 2 years of schooling between the ages of 15 and 20 years. Coloured women, on the other hand, were much more likely to drop out of school after the pregnancy, and gained little additional schooling after becoming pregnant. The authors hypothesize that this racial difference is a manifestation of a more general difference in dropout rates between black and coloured schools, and that the higher rates of grade repetition in black schools make it easier for

black women to return to school after a pregnancy. Black schools are also more forgiving in terms of grade repetition and school disruption caused by pregnancy. This may also explain why rates of teen sexual activity in South Africa are higher than in many other parts of sub-Saharan Africa[68].

It is important to note that in many cases, pregnancy is not a reason for school leaving but the result of early school dropout. Forty four percent (n=78) of patients who were not currently attending school had left prior to the pregnancy without achieving matric. This figure is less than the figure of 60% as quoted by Wegner et al when examining leisure boredom and high school dropout in Cape Town. Students who reported higher levels of leisure boredom were more likely to drop out of school and it is hypothesized that this may be due to general dislike of school, feeling either under stimulated or overwhelmed at school and is more likely to occur in poorer schools where there are limited after school activities and extracurricular sport. The perception of school as boring may also reflect adolescent resistance to adult control and authority[69].

Flischer et al examined characteristics and risk taking behaviour amongst high school dropouts in the Cape peninsula. Out of 87 teenagers who had left school before completion, 47% left due to dislike of school or truancy, 25% left due to poor academic progress and 18% left due to financial difficulty. More than two thirds had left having achieved the qualification of grade 8 (standard 6) or less [70].

Contraceptive knowledge and use

Only 12.1 percent of all patients were using contraception at the time of conception and, in young women aged 16 years, this value was only 7.3%. This figure is lower than reported by Vundule et al, studying a similar group of pregnant teenagers in the Cape Town area, who quoted 19.6% contraception use in pregnant teenagers in the past year. Of note, matched non-pregnant controls reported 59% contraception usage (RR 0.15, CI 0.10 – 0.25). The authors found that the pattern of contraception use was initial non-use, followed by intermittent use, with non-pregnant controls more likely to use subsequent contraception than their pregnant counterparts. Of interest,

pregnant teenagers were 7 times more likely to have not used depot medroxyprogesterone acetate in the past year, compared to non-pregnant controls (RR 7.57, 95%CI 4.56 – 12.57)[5].

MacPhail et al studied contraceptive use and pregnancy among women aged 15 – 24 years in South Africa. They reported 52.2% contraception use overall with 59% of women aged 15 – 19 years having used contraception in the last year. Young women were more likely to report contraceptive use if in a relationship with a steady single partner for over 1 year, indicating that contraception seems a feature of long-term relationships and not casual relationships. The authors also found that women who had ever been pregnant were more likely to use contraception as it was only after a first pregnancy that young women were counselled about long term reliable contraception, with preference being given to hormonal methods. The authors indicated that condom use declines as relationships progress, indicating the importance of trust in the decision to use contraception, especially condoms [71]. This is echoed by the study conducted by Kenyon et al in Cape Town, aptly titled ""I don't use a condom (with my regular partner) because I know that I'm faithful, but with everyone else I do": The cultural and socioeconomic determinants of sexual partner concurrency in young South Africans" [45]. Blanc et al studied trends in adolescent contraceptive use and discontinuation in developing countries and compared their findings with adult women (over 19 years of age). The percentage of sexually active, unmarried women aged 15 – 19 years using contraception ranged from less than 10% in countries such as Chad, Mozambique and Zambia to over 60% in countries such as Brazil, Colombia and Peru which reported 85.5% contraception use amongst adolescents according to 1986 data. The authors stated that young women at the onset of sexual activity are learning to use contraception to prevent unplanned pregnancies but usage involves much experimentation and inconsistent use [72].

In our study it is interesting to note that only 62.7% listed condoms as a method of contraception and only 40% of black women and 27% of coloured women had ever used them. It is likely that condoms are considered in the context of prevention of HIV/AIDS and not always considered for pregnancy prevention. In contrast, knowledge of "the injection" was 87% and usage was

31% (47.9% amongst black patients). The injectable contraceptive was the most common method cited for pregnancy prevention and this may reflect attitudes of health care workers who encourage young women to use long term, more reliable contraception.

This is supported by Woods and Jewkes who conducted a qualitative study examining adolescent sex and contraceptive experiences and perspectives in the Northern Province of South Africa. All nurses interviewed perceived Nuristerate to be the most appropriate method for "school-children". They felt teenagers were too irresponsible to take the oral contraceptive pill and were hesitant to dispense condoms as most teenage clients refused to take them because their partners would never agree to their use or because they were afraid to ask in case it would be misconstrued as an admission of sexual infidelity or mistrust. Reasons as to why women did not consider condoms for contraception include fear they might get 'lost' during sex, their partner refused to wear a condom, fear of lack of control as they may be forced to have sex without a condom available or would be beaten if they suggested a condom as it represented a lack of trust or infidelity [48].

Knowledge about emergency contraception was 40%, yet only 8% of women had ever considered its use. In a study conducted by Ehlers in South Africa, 24.4% of adolescent mothers younger than 19 years knew about emergency contraception. Reasons for not using this method of contraception included fear of harm to the baby if the pills failed, fear of infertility and fear of their mothers or clinic sisters' knowledge of their sexual activities[73]. The perceptions of pharmacists in Soweto and Johannesburg, South Africa was explored by Blanchard et al and reported that half of the 34 pharmacists interviewed believed repeated use posed health risks, and almost half believed they should not be given to women younger than 18 years of age[74]. It is suspected that there is fear that greater promotion and provision of emergency contraception to teenagers would encourage promiscuity and decrease long term contraceptive use and increase risks of HIV transmission.

Just over a quarter of women (26.4%) stated that they had considered a termination of pregnancy. Currently TOP rates for teenagers in South Africa are 23% for women aged 13 to 16 years, and 14.9% for women aged 17 to 19 years[75.] Varga examined reasons for adolescents accessing "backstreet" abortions and found that this practice stems from fear of the stigma attached to termination of pregnancy, the belief that it is immoral (particularly in the Zulu culture) and fear that partners would not approve. It is likely that these

reasons would prevent some women from considering termination of pregnancy in general[13].

In our study, we found a large discrepancy between contraception use and concern over pregnancy. Despite only 12% of women using contraception, 43% were concerned about falling pregnant. We did not explore reasons for non use of contraception but likely some of the findings discussed above would be pertinent to our study. It is equally concerning that although 76% of teenagers reported their pregnancies happened at the wrong time and were thus unintended, only 43% were concerned about falling pregnant. We are unable to explain this discrepancy from our data, but it suggests that teenager's attitude to sex must be further examined. Themes emerging from the study conducted by Woods and Jewkes include the perception of sex as a "game", not thinking about after-effects, forced sex and coercion and the exploitation of young women, often by older men in return for presents or money [48].

Zabin et al, in a study from the United States report that more than one third of adolescents visit a clinic because they suspect pregnancy versus 14% who come before initiating sexual activity to seek contraception. The authors further state that most patients fear their parents will find out and delay seeking contraception until a year or more after becoming sexually active [76].

Abuse

Just under a third of women (31.21%, n=98) admitted to at least one form of abuse. Our figures are lower than those quoted by Goicolea in Ecuador, who reported incidences of over 50%. It is likely that abuse was under reported in our study. We also did not distinguish childhood abuse from abuse as an adult and did not ask specifically about rape.

Data from the United States report that 4.5 out of 10 pregnant adolescents suffered childhood sexual abuse and possible mechanisms to explain this link include how abuse alters the child's emotional and social-cognitive skills and causes distortions including confused sexual boundaries, ambiguities regarding sexual appropriateness and the pairing of sexuality to violence and exploitation[77]

Studies from South Africa by Wood et al report that 71% of pregnant teenagers had had non-consensual sex and 11% stated they had been "raped". Furthermore, 59% reported physical abuse from their partners. The authors state that there is a paucity of data understanding why men act as they do and that this should be an area for further research[11]. It is regrettable we were not able to explore this theme more fully but it is of a sensitive nature and would need to be explored in more detail, ideally through qualitative research with a multi-disciplinary team including a social worker and/or psychologist and without time constraints.

Limitations

It has previously been discussed that teenagers under the age of 16 were excluded from this study. This particularly vulnerable group of young women needs further study and this should be addressed in further research.

Not all eligible patients were recruited as some patients left the clinic before being interviewed due to their personal time constraints.

As mentioned, this is an exploratory study and as such, provides an overview of the background of pregnant patients accessing our services. We did not explore all themes as fully as we would have wished for practical reasons and some areas demand further research. Specific shortfalls we identified include not asking about age at sexual debut and number of sexual partners, reasons for not using contraception and addressing abuse in more detail.

Qualitative research on a similar group of patients may yield more information and provide greater insight as to perceptions around sexual relationships, contraception and teen pregnancy. Furthermore, it is important in future research to follow these patients up and determine levels of coping with their babies, support systems, returning to school and levels of post partum depression as well as subsequent contraception use and experiences of their pregnancies and attitudes of health care workers.

CHAPTER 5: CONCLUSION

Teenage pregnancy is a global problem of devastating proportions with no easy solution. Teenagers cannot be expected to shoulder the burden of this responsibility alone. The attitudes and actions of teenagers to pregnancy and parenthood are critically shaped by their environments.

The common themes in this study are that the pregnant teenager in the Cape Peninsula is likely to come from a disrupted home, from a poor income family, be at significant risk for mental health problems, not complete school, be a victim of abuse and to use contraception unreliably. Without intervention, she is also at risk of a rapid repeat pregnancy (studies report repeat pregnancy rates among adolescents to be as high as 66%) [3].

Poverty and family instability are areas with a profound impact on young women's lives and risk of teenage pregnancy, but, unfortunately, not easily rectified. The school, however, may provide a sound and stable foundation for socially disadvantaged teenagers to help empower them and improve future opportunities. The school may also serve as a platform for improving gender inequality and teaching both young men and women about sexual health and contraception as well as interventions aimed against gender-based violence.

It is important not only to address these issues at school, but also to improve education, extra-curricular activities and support systems to help keep young women in school, as it is known that school drop-out may precede teen pregnancy.

The onus on us as health care providers is to empower young girls to negotiate their own relationships, give them accurate contraceptive knowledge at an early age and be non-judgemental in our attitudes. Countries, such as the Netherlands, that have prepared for an increasingly sexual society and ensure that their young are well informed have lower teen pregnancy rates and a later age of sexual debut [57].Furthermore interventions and support systems should be aimed towards disadvantaged and vulnerable groups of young women who are at higher risks of teenage pregnancy and adverse life events thereafter.

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TEENAGE PREGNANCY: A REVIEW OF PATIENTS ACCESSING OBSTETRIC CARE IN THE PENINSULA MATERNAL AND NEONATAL SERVICE: *HREC Ref: 561/2010*

CONSENT FORM

I have agreed to take part in a research study to gain insight into teenage pregnancy in the Cape Town area. This study is being conducted by healthcare professionals from the Reproductive Medicine Unit of the Department of Obstetrics and Gynecology. The study has been approved by the Faculty of Health Sciences Research Ethics Committee of the University of Cape Town.

The purpose of this study has been explained to me in a language of my choice by a member of the Reproductive Medicine Unit. I shall be one of several hundred women who join this study.

The study involves the completion of a questionnaire with the help of a member of the Reproductive Medicine Unit. My participation is voluntary and I may withdraw at any time. I may choose not to answer any question if I so wish. It has been explained to me that this will not affect my medical care and that the study poses no risk to me. I understand that I may not benefit directly from this study and that there is no financial reward for my participation.

I understand that confidentiality will be maintained where possible and I will not be identifiable in the database or any manuscript subsequently produced. I may be referred to a social worker or other health care professional if deemed helpful.

I have been given adequate opportunity to ask questions.

PARTICIPANTS NAME: SIGNATURE:

……. …….

INVESTIGATORS NAME: SIGNATURE:

……. …….

DATE: ……/……/ ……

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TEENAGE PREGNANCY: A REVIEW OF PATIENTS ACCESSING OBSTETRIC CARE IN THE PENINSULA MATERNAL AND NEONATAL SERVICE

HREC Ref: 561/2010

Information for patients

You are eligible to take part in a research study. This study is being conducted by the Reproductive Medicine Unit of the Department of Obstetrics and Gynaecology of the University of Cape Town. This form will give you information about why the study is being done, what will happen during the study and any risks and benefits involved in the study. Please read it carefully. When you are finished, please talk to the researcher and ask questions. If you would like to take part in the study, you will be asked to sign the attached consent form and will be given a copy to keep.

GENERAL INFORMATION ABOUT THE STUDY AND RESEARCHERS

- **Study title**

  Teenage Pregnancy: A Review Of Patients Accessing Obstetric Care In The Peninsula Maternal And Neonatal Service

- **Researchers**

  Dr Linda Vollmer

  Professor ZM van der Spuy

  Research sisters from the Reproductive Medicine Unit (employed by UCT)

The study has been approved the Health Science Research Ethics Committee of the University of Cape Town.

WHY IS THIS STUDY BEING DONE?

Teenage pregnancy is very common in South Africa. We are conducting this study to understand why teenage pregnancies occur so frequently, to gain insight into family and social circumstances of pregnant teenagers and to assess contraceptive use and knowledge. In particular, we hope that that information gained will result in us being able to motivate for improvements in our clinical services, particularly information about and access to contraception and women's health. Your insights will be very helpful in achieving this goal.

STUDY PARTICIPENTS

- Women aged between 16 and 19 years who are pregnant and coming to the clinic or hospital for antenatal care will be asked to join the study.
- We hope to enrol 300 women in the study from Khayelitsha, Mitchells Plain and Gugulethu MOUs as well as Mowbray Maternity Hospital, starting in 2011.
- Participation in the study is entirely voluntary and your present and future treatment will not be affected if you do not join.
- To be part of the study, we will ask you to complete a questionnaire with one of the researchers. This should take 15 minutes, during your clinic visit. You may decline to answer any questions if you find them upsetting in any way.
- The doctors and sisters who provide your care at the MOU and Mowbray Hospital are not part of the study.

INFORMATION ABOUT RISKS AND BENEFITS

- This study involves a questionnaire and does not pose a risk to you.
- Where necessary we will arrange for support and counselling if you identify any specific problems that should be addressed.
- You may not benefit directly from joining the study but your participation will assist us in helping other young patients in your position in the future.
- There is no financial reward for joining the study.
- You will not incur any costs by being part of the study.
- The investigators do not have any financial interest in the study.

- This research forms part of work towards a higher degree and will be published in the medical literature and submitted for examination within the University of Cape Town. You will not be identified in this documentation.

CONFIDENTIALITY

- The questionnaire will be completed in a private and quiet area.
- Your name or other personal identifiers will not be included in the database.
- Only the investigators will see the questionnaires.
- When the study is finished, the research data will be stored in the Department of Obstetrics and Gynaecology of the University of Cape Town. Results of the study will be anonymous.
- You will be asked to sign consent for yourself. If your parents are present, you are free to discuss the study with them and we will answer any questions that they may have.
- Confidentiality will be maintained where possible.
- You may be referred to the social worker or other health care professional after the interview if any problems are identified and you feel this may be helpful.

CONTACT INFORMATION

If you have any further questions which have not been fully answered by the researcher conducting your interview, you can contact

- Dr Linda Vollmer (Principal Investigator) 082 774 3646.
- Dr M Patel (Member of the Reproductive Medicine Unit, not involved in the study) 021 404-6026
- Professor M Blockman (Chair of the Human Research Ethics Commitee of the Faculty of Health Sciences of the University of Cape Town) (021) 406 - 6338

Thank you for your time.

TEENAGE PREGNANCY: A REVIEW OF PATIENTS ACCESSING OBSTETRIC CARE IN THE PENINSULA MATERNAL AND NEONATAL SERVICE

HREC Reference 561/2010

PATIENT NUMBER

_____

DATE OF INTERVIEW

_____

PLACE OF INTERVIEW

_____

INTERVIEWER

Note: All terms will be expressed in language which the participant understands

SECTION A: BACKGROUND INFORMATION

1	Date of birth	
2	Current age? (please enter in years and months)	
3	Population group? 1= Black South African, , 2=Coloured,	
4	Home language? 1=English, 2=Xhosa, 3=Afrikaans, 4=other (please specify)	

SECTION B: OBSTETRIC HISTORY

5	Gravidity (please enter number)	
6	Parity	
7	Miscarriages	
8	Termination of pregnancies	
9	Ectopic pregnancies	

SECTION C: CURRENT PREGNANCY

10	Gestational age at time of booking (please enter number in weeks, please specify if UNBOOKED, code = 99)	
11	Current gestational age (in weeks)	
12	Did this pregnancy happen at the right time for you? 1=yes, 2=no, 3 = don't know	
13	When would you have preferred to fall pregnant? 1=after 1 year, 2=after 5 years, 3=after 10 years, 4=another time (please specify), 5 = answered yes to q.12	

SECTION C: FAMILY INFORMATION

14	With whom do you live? (mark all that apply) 1=father, 2=mother, 3=partner, 4=sibling, 5=grandparent(s), 6=other relative (please specify), 7=friend, 8=partners family, 9= lives alone, 10=other (please specify)	
15	Who raised you? 1=both parents, 2=single father, 3=single mother, 4=grandparents, 5=aunt/uncle, 6=sibling, 7=other relative (please specify), 8=other (please specify)	
16	Who would you presently consider to be your primary care-giver? 1 = partner, 2 = father, 3 = mother, 4 = sibling, 5 = grandparent, 6 = other relative (please specify), 7 = neighbour, 8 = other (please specify)	
17	Marital status of parents? 1=married, 2=unmarried but living together in a current relationship, 3=divorced/separated, 4=widowed, 5=single parent (other parent never present), 6=both parents deceased, 7=one parent deceased, 8=other (please specify)	

18	Number of sisters? (Include step and half sisters if they grew up in the same family)	
19	Number of brothers? (Include step and half brothers if they grew up in the same family)	
20	How old is your oldest sibling, by your mother? (If you are the oldest child, please enter your age in years)	
21	Are you your mothers first born child? 1=yes, 2=no	
22	Have any of your sisters been pregnant/had a child as a teenager? 1=yes, 2=no, 3=n/a, 4=don't know	
23	Have any of your brothers fathered a child while still a teenager? 1=yes, 2=no, 3=n/a, 4=don't know	
24	How old is your mother (if not sure, estimate to nearest year?)	
25	Are you currently employed? 1 = yes full time, 2 = yes part time, 3 = casual, 4=no	
26	Are you financially independent i.e. can you personally meet all your own expenses? 1=yes, 2=no	
27	Are you financially dependent on your parents/care giver? 1 = yes, completely, 2 = partly, 3 = no	
28	Are your parents/ caregivers more or less strict than those of your friends? 1 = more strict, 2 =less strict, 3 = don't know	
29	Do your parents/ caregiver monitor your social life i.e. is they aware of your comings and goings? 1 = yes, 2 = no, 3 = don't know	
30	Do your parents/care givers monitor your school/work life? 1=yes, 2=no, 3=don't know, 4 = N/A (not at school or working)	
31	Do your parents/caregivers monitor your domestic arrangements? 1=yes,2=no,3=don't know	

In the event of women not living in their parents' house (including married women), questions 28 – 31 can be answered in retrospect.

SECTION D: SOCIO-ECONOMIC INFORMATION

32. Please list all the people in your household (I am referring to people who live in your home for at least 2 weeks of every month and share your food).

(a)Relationship to you	(b)Age	(c)Sex	(d)Employment status	(e) Level of education

Codes:

(a)Relationship	(b)Age	(c) Sex	(e)Employment status	(f) Level of education
1 = Father	If unsure of age	1 = male	1=Employed full time	0=None
2=Mother		2 = female	2=Self – employed (formal	1=Primary School
3=Brother	1=adult		3=Self-employed (informal)	2=High school(finished)
4=Sister	2=child		4=Part time/contract/temporary	3=High school(did not finish)
5-Grandparent	3=don't know		5=Casual	4=Tertiary education
6=Other relative (please specify)			6=Unemployed	5= Scholar (school going)
7=Partner			7=Pensioner	6= child (not yet of school going age)
8= Non relative (tenant/lodger/friend)			8=Student (tertiary education)	7=don't know
			9=Scholar (school going)	
			10=child (not yet of school going age)	
			11=grant	
			12=don't know	

33	What type of dwelling does your household occupy? 1=formal house on separate stand, 2=flat, 3=semi-detached house, 4=room in main dwelling (separate entrance)5=room in main dwelling (common entrance), 6=room in backyard (Wendy house), 7=informal dwelling/shack, 8=homeless, 9=other (please specify)	
34	What is the main material of the house's walls? (pick one that best applies) 1=brick, 2=cement, 3=wood, 4=mud, 5=corrugated iron, 6=plastic/cardboard, 7=don't know	

35	What is the main material of the house's roof? (pick one that best applies) 1=tiles, 2=thatch, 3=corrugated iron, 4=plastic/cardboard, 5=don't know	
36	How many rooms in your house? (exclude bathrooms, garages, and out houses unless people are living in them)	
37	What is the main source of drinking water? 1=indoor plumbing, 2=outside tap, 3=borehole/well, 4=public tap, 5=dam/river, 6=other (please specify)	
38	What kind of toilet do you have? 1=flush toilet indoors, 2= flush toilet outdoors, 3=pit latrine, 4=bucket, 5=no facility	
39	Which of these items can be found in your home (please indicate all that apply) 1=TV, 2=landline telephone (i.e. Telkom line), 3=cell phone, 4=computer, 5=car	

SECTION E: RELATIONSHIPS AND SUPPORT

40	What is your current relationship status? 1=single, 2=steady boyfriend (co-habiting), 3=steady boyfriend (not co-habiting), 4=married, 5 = widowed, 6=divorced	
41	What is the age of your partner? Enter in years, if not applicable, code=99.	
42	Is your current partner the father of this pregnancy? 1=yes, 2=no, 3=N/A	
43	If in a current relationship with the father of this pregnancy, what is the duration of this relationship? Enter in years and months, 99=N/A	
44	If not in a current relationship with the father of this pregnancy, what was the duration of that relationship? Enter in months and years, 99=N/A	
45	Who is the first person you told about this pregnancy? 1=partner, 2=parents, 3=sibling, 4=grandparents, 5 = other relative (please specify),6=friend, 7=undisclosed pregnancy, 8=other (please specify)	
46	From whom will you get emotional support during and after the pregnancy? (mark all that apply) 1=partner, 2=mother,3=father, 4=sibling, 5=grandparent, 6=other relative (please specify),7=friend, 8=partners family, 9= other (please specify), 10=don't know	

47	From whom will you get financial support during and after the pregnancy? (mark all that apply) 1=partner, 2=mother, 3=father, 4=sibling, 5=grandparent, 6=other relative(please specify), 7=friend, 8=partner's family, 9=plans to support myself, 10=other (please specify), 11=child grant, 12=no financial support, 13=don't know	
48	Do you feel you have enough support? 1=yes, 2=no , 3=N/A	
49	Will someone you know be with you during your labour/birth of the baby? 1=yes, 2=no, 3=don't know	

SECTION F: PERINATAL MENTAL HEALTH SCORE

Please fill in the codes 0 or 1 for each of the following 5 questions to make a total score out of 5

50	Is your partner or someone at home sometimes violent towards you? 0=no, 1=yes	
51	Is your partner supportive? 0=yes, 1=no	
52	Are you pleased about this pregnancy? 0=yes, 1=no	
53	Have you had some very difficult things happen in the last year? 0=no, 1=yes	
54	Have you had problems with things like depression, anxiety or panic attacks before? 0=no, 1=yes	
55	Interviewer to please add the scores for questions 50 - 54 to give a score out of five.	

SECTION G: SUBSTANCE USE

56	Do you smoke cigarettes? 1=yes, 2=no, stopped, 3=no, never	
57	Do you drink alcohol? 1=yes, regularly, 2=yes, rarely, 3=no, stopped, 4=never	
58	Do you take recreational drugs? 1=yes, 2=no, stopped, 3=never	
59	If YES, which drugs? 1=dagga, 2=tik, 3=cocaine, 4= heroin, 5=mandrax, 6=other(please specify), 7=N/A	

SECTION H: EDUCATION AND FUTURE PLANS

60	What is your highest grade passed?	
61	Are you currently attending school? 1=yes, 2=no	
62	If NO, why did you leave? 1=completed, 2=left due to pregnancy, 3=left to seek employment, 4=no funds for school, 5=asked to leave (specify reason), 6=didn't enjoy school, 7=other (please specify), 8=N/A	
63	What are your future plans after this pregnancy? 1=return to school, 2=seek employment, 3=study further, 4=stay at home full time, 5=other (please specify)	

SECTION I: CONTRACEPTIVE USE AND KNOWLEDGE

64. I would like you to tell me all the methods of family planning which you KNOW ABOUT.

65.I will then ask if you have USED any of the methods you have mentioned.

Method	Know About	Used
a) Rhythm method		
b) Douche		
c) Breast feeding		
d) Diaphragm/cap		
e) Foam		
f) Jelly/cream		
g) Suppositories		
h) Tampon/sponge		
i) IUCD/coil		
j) Injection/implant		
k) Pill		
l) Sterilisation (female)		
m) Sterilisation (male)		
n) Termination/abortion		
o) Emergency contraception		
p) Female condom		
q) Male condom (partner using)		
r) Abstinence		
s) Other (please specify)		

66	Were you using contraception at the time of conception? 1=yes, 2=no	
67	If YES, please specify (use letter from above) or 99 if not applicable	
68	If NO, were you concerned about falling pregnant? 1=yes, 2=no, 3=N/A	
69	Do you know what emergency contraception is? 1=yes, 2=no	
70	Have you ever considered emergency contraception? 1=yes, 2=no, 3 =N/A	
71	Do you know where to access emergency contraception? 1= yes, 2=no, 3=N/A	
72	Did you consider a termination of this pregnancy? 1=yes, 2=no, 3 = don't know	
73	Do you find it easy to access contraception? 1=yes, 2=no, 3 = N/A	
74	Where do you usually get contraception? 1=family planning clinic, 2=day hospital, 3=family doctor(GP), 4=school, 5=youth/community centre, 6=other (please specify), 7 = N/A	

75	Do you feel that information regarding contraception is readily available to you? 1-yes, 2=no, 3=don't know	
76	Do you feel that the contraception services available to you are adequate and user friendly? 1 = yes, 2 = no, 3=don't know	
77	Would you value more information/education about contraception, sexual and women's health? 1=yes, 2=no, 3=don't know	

SECTION J

78	Has anyone ever abused/hurt you physically? 1=yes, 2=no, 3=declined to answer	
79	Who was the perpetrator? (mark all that apply) 1=father, 2=mother, 3=partner, 4=sibling, 5=other relative, 6=stranger, 7=other (please specify), 8=N/A, 9= declined to answer	
80	Has anyone ever abused/hurt you verbally? 1=yes, 2=no, 3=declined to answer	
81	Who was the perpetrator? (mark all that apply) 1=father, 2=mother, 3=partner, 4=sibling, 5=other relative, 6=stranger, 7=other (please specify), 8=N/A, 9= declined to answer	
82	Has anyone ever abused/hurt you sexually? 1=yes, 2=no, 3=declined to answer	
83	Who was the perpetrator? (mark all that apply) 1=father, 2=partner, 3=sibling, 4=other relative, 5=stranger, 6=other (please specify), 7= N/A, 8=declined to answer	
84	Is this pregnancy a result of non-consensual sex? 1=yes, 2=no,3=declined to answer	
85	If you answered yes to any of the above questions, was the incident reported? 1=yes, 2=no, 3=N/A	
86	If yes to any of the above questions, please indicate that patient has seen or been referred to the social worker. 1=seen already, 2=referred, 3=N/A	

87	Do you have any further comments for us? (Interviewer may choose to include any information that arises which may be pertinent)

Thank you for your participation.

UNIVERSITY OF CAPE TOWN

Faculty of Health Sciences
Human Research Ethics Committee
Room E52-24 Groote Schuur Hospital Old Main Building
Observatory 7925
Telephone [021] 406 6626 • **Facsimile** [021] 406 6411
e-mail: shuretta.thomas@uct.ac.za

15 March 2011

HREC REF: 561/2010

Dr LR Vollmer
c/o Prof ZM Van der Spuy
Obstetrics and Gynaecology

Dear Dr Vollmer

PROJECT TITLE: TEENAGE PREGNANCY: A REVIEW OF PATIENTS ACCESSING OUR OBSTETRIC CARE IN THE PENINSULA MATERNAL AND NEONATAL SERVICE.

Thank you very much for your comprehensive and thoughtful response to the Faculty of Health Sciences Human Research Ethics Committee's extensive comments.

It is a pleasure to inform you that the Ethics Committee has **formally approved** the above-mentioned study.

Approval is granted for one year till the 30 March 2012.

Please submit an annual progress report (FHS016) if the research continues beyond the expiry date. Please submit a brief summary of findings if you complete the study within the approval period so that we can close our file.

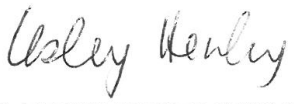
Minor Addition:
Please could you add, under contact information in the Information Sheet, contact details for Professor Marc Blockman, Chairperson of the Human Research Ethics Committee, if the participants have any questions or concerns about their rights and welfare as research subjects.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please quote the HREC REF in all your correspondence.

S Thomas

Yours sincerely



A/PROF MARC BLOCKMAN
CHAIRPERSON, FHS HUMAN ETHICS
Federal Wide Assurance Number: FWA00001637.
Institutional Review Board (IRB) number: IRB00001938

This serves to confirm that the University of Cape Town Human Research Ethics Committee complies to the Ethics Standards for Clinical Research with a new drug in patients, based on the Medical Research Council (MRC-SA), Food and Drug Administration (FDA-USA), International Convention on Harmonisation Good Clinical Practice (ICH GCP) and Declaration of Helsinki guidelines.

The Human Research Ethics Committee granting this approval is in compliance with the ICH Harmonised Tripartite Guidelines E6: Note for Guidance on Good Clinical Practice (CPMP/ICH/135/95) and FDA Code Federal Regulation Part 50, 56 and 312.

DEPARTMENT of HEALTH
Provincial Government of the Western Cape

COMPONENT

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REFERENCE: RP 82/2011
ENQUIRIES: Dr N Peer

Department of Obstetrics & Gynaecology
PO Box 34584
Groote Schuur
7937

For attention: **Dr Linda Vollmer, Prof van der Spuy**

Re: Teenage Pregnancy: A review of patients accessing obstetric care in the Peninsula Maternal an Neonatal Service

Thank you for submitting your proposal to undertake the above-mentioned study. We are pleased to inform you that the department has granted you approval for your research.

Guguletlhu CHC	**Ms Mabusela**	**Tel: (021) 637 1280**
Mitchells Plain CHC	**Ms Zethu Xapile**	**Tel: (021) 391 5820**
Khayelitsha	**Ms M Notshe**	**Tel: (021) 361 3816/3470**

Kindly ensure that the following are adhered to:

1. Arrangements can be made with managers, providing that normal activities at requested facilities are not interrupted.
2. Researchers, in accessing provincial health facilities, are expressing consent to provide the department with an electronic copy of the final report within six months of completion of research. This can be submitted to the provincial Research Co-ordinator (healthres@pgwc.gov.za).
3. The reference number above should be quoted in all future correspondence.

We look forward to hearing from you.

Yours sincerely

DR T NAIEDI
DIRECTOR: HEALTH IMPACT ASSESSMENT
DATE: 15/09/2011

CC **DR J CLAASSEN** **DIRECTOR: KLIPFONTEIN/MITCHELLS PLAIN**
DR G PEREZ **DIRECTOR: EASTERN/KHAYELITSHA**